

**ARE YOU  
A DIABETIC?**

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*This book is published to create awareness among the  
public. It shall be reprinted or copied with reference*

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## **PREFACE**

*Diabetes is one of the most common diseases in India, especially in South India. But it is hard to see people with basic and required knowledge about diabetes. Even the diabetic doesn't know anything about the disease. It is such a pitiful condition. Diabetes is not a curable disease. At the same time it is not a killer disease. The worst effects of diabetes are amputation and anopia. These complications of diabetes can be prevented by just knowing when and how it is caused. Hence not only the diabetic but also his family members should know about the disease. In this book I have discussed the nature of diabetes, various aspects of diabetes, how to treat diabetes and how to control it. I hope this book gives confidence to the diseased to live a healthy and happy life.*

**- Dr. J. Rajagopal,** *B.Sc, B.S.M.S.*

## **ACKNOWLEDGEMENTS**

I take this opportunity to thank Dr. R. Anitha BSMS, MD, Dr. Kanaka Rajarajan B.Sc.,MBBS and Mr. R. Anand Jeeva, M.B.B.S. Student helping me to make this book a much more useful one.

I also thank Dr. Annal Fathima Rani BA, BSMS, Dr. D. K. Soundara Rajan BSMS. M.D, Dr. Yatendra Singh Malik and Dr. S. D. Krishna Kumar BSMS MD, Miss S.T. Sharmila MSc, MPhil for their clinical supports.

I also thank Mr. N. Krishnamoorti and Dr. Chandrakumar Immanuel., M.D., D.M. for their encouragement for writing this book.



**Dr. J. Rajagopal**

## **A RECOMMENDATION**

Dr. J. Rajagopal, B.Sc., B.S.M.S has written an introductory book, “**Are you a Diabetic**” based on decades of his experience in treating and counselling diabetic patients. Starting with basic introductory aspects of diabetes, he elaborates on the treatment, choice of diet, physical activity and medicine to bring relief to the patient.

He explains, how diabetes which starts as a disorder, becomes disease if it is neglected. His suggestions for treatment are holistic, assigning a proper place for lifestyle, eating style and medicines. He is able to place the whole treatment process in the background of a better disciplined life with greater awareness of not only the disease but also life in general.

At a time when diabetes is threatening to develop into a major health problem in developing countries, especially India, curative methods that go into the root-cause will bring long-lasting effects and greater comforts to the patients.

Dr. J. Rajagopal’s efforts and approach deserve commendation. I wish him well and recommend the book for a greater circulation.



Kanyakumari,  
04.04.2012

*N. Krishnamoorti*  
Vivekananda Kendra



## **FOREWORD**

**Dr. D.K.Soundararajan**, B.S.M.S., M.D.  
(Kuzhanthaimaruthuvam)  
Reader  
PG.dept. of kuzhanthaimaruthuvam  
Govt Siddha Medical College  
Palayamkottai.

As we all know the fact that, the madhumeagam so called diabetic mellitus is one the life style modifying disease that can be monitored or controlled only by dietary management and regular body exercise. This is also a challenging disease to the medical world and similarly the survival rate has been increased with reliable treatment as on date available with the drugs.

Our own indigenous system has also noted a various kinds of single and compound drug therapy indicated for this madhumeagam. The BIO-AQ capsules is one among the drugs which is invented and manufactured by my respectful and beloved friend Dr.J.Rajagopal who is eminent and highly interested academic oriented consultant of siddha system

I have been administrating the BIO-AQ drug to my diabetic patients for more than Ten years. They are very well tolerated with this drug and they are very comfort with their life.

With the blessings of almighty, Dr. Rajagopal will be exemplary to other siddha physician in the siddha field.

With warm regards,

Palayamkottai,  
13.06.2012.

**Dr. D. K. Soundararajan**




## **FOREWORD**

**Dr. Chandrakumar Immanuel,**  
M.D., D.M.,  
Cardiologist,  
Dr. Jayasekaran Hospital,  
K. P. Road, Nagercoil.

Diabetes is the most common non communicable disease prevalent in the society. As much as 10% - 15% of general population suffer from diabetes. India has the dubious distinction of being called the diabetes capital of the world. In this context, one of my senior friend and colleague Dr. Rajagopal who has already published a book on diabetes is compiling another book on diabetes.

An ancient Chinese proverb says, “An average doctor treats the disease but a superior doctor prevents the disease”. He has described in detail the ways of preventing the disease and living with diabetes. I am hopeful that health education is the only way to control the monster disease. As this is the era of evidence based medicine, he has made attempts to scientifically validate some of the ancient siddha remedies. I extend my heartfelt wishes for the success of his endeavour.

Nagercoil.  
20.5.2012

  
**Dr. Chandrakumar Immanuel**



## **FOREWORD**

**Dr. S. D. Krishna Kumar,**

B. Sc., B.S.M.S., M.D.,

Lecturer

G.S.M.C, Palayamkottai.

“Are you a diabetic? Yes. Standing on the safest side of diabetic scale?” is a wonderful reflection of the compassionate, scholarly and meticulous approach to the day to day medical ailments of diabetes mellitus, encountered by Dr. J. Rajagopal and all other siddha practitioners in their routine practice.

The siddha practitioners and other general practitioners show their gratitude to Dr. J. Rajagopal when they read the pages of the book

The author has endeavored to provide siddha medical practitioners with a reliable digest of up to date medical information in a convenient, concise and adequate form necessary for the proper management of diabetes mellitus. He has selected the topics very carefully and has emphasized the need of basic knowledge about diabetes mellitus and the management of the disease with poly herbal drug BIO-AQ.

I am fully confident that the siddha practitioners and the general practitioners all over the state will make an extensive use of the hand book.

I congratulate the author for compiling such useful information about the diabetes and for his excellent herbal drug BIO-AQ. I wish him all success.

Palayamkottai,  
20.03.2012

**Dr. S. D. Krishna Kumar**

## **FOREWORD**

**Dr. Yatendra Singh Malik,**

AYUSH Medical Officer,  
54, Indira Nagar Colony,  
Dehradun,  
Uttanchal – 248006.

I feel lot of pleasure to note that BIO-AQ an herbal product is very much effective for the treatment of NIDDM without any adverse effect. Dr Rajagopal is carrying forward this traditional product in next generation and he is really appreciable for this holy approach in service of mankind.

As the report published in Journal of Pharmaceutical & Clinical Research Jan-March 2012 BIO-AQ has shown a Cardio protective effect showing decreased levels of per oxidation product and increased the activities of enzymatic and non-enzymatic antioxidant. BIO-AQ is really a multipurpose herbal product for retaining the health. I wish him all success.

Dehradun  
26.04.2012



**Dr. Yatendra Singh Malik**



## **A RECOMMENDATION**

**Dr. A. Fatima Rani**, B.A., B.S.M.S.  
Mukil Health Centre  
T. Pudupatti Post  
Rajapalayam Main Road  
Thirumangalam T.K.  
Madurai - 625 704.

I read the handbook on Diabetes written by Dr. J. Raja Gopal with great interest. I found the book easy to read; the language is simple, the subject matter is clearly presented and the suggestions given are practical and useful.

The author has succeeded in fulfilling the objectives of the booklet, “to give confidence to the diseased and live a healthy and happy life, by providing a “basic and required knowledge about diabetes”. He has covered the four areas.

- the nature of diabetes
- various aspects of diabetes
- treatment of diabetes and
- control of diabetes.

in a simple style which everyone can understand.

I congratulate Dr. J. Raja Gopal for having given us a practical guide to prevent and treat diabetes.

I highly recommend the booklet to one and all and the medicine to those in need.

Thirumangalam  
1.7.2012

*A. Fatima Rani*

**Dr. A. Fatima Rani**

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## **ARE YOU A DIABETIC?**

### **Yes. Standing on the safest side of Diabetes scale?**

Once you find that you have diabetes don't hesitate to discuss with your doctor how to control. Good control of diabetes can prevent most of the complications. Keeping blood sugar below the recommended values is the most important thing you can do to prevent the diabetes complications. Once diabetes affects the nerves and blood vessels it is often not possible to bring the patient back to a normal state. It affects almost all parts of the body. Hence the target is to prevent further complications or amputation. The most important thing you can do is to protect your foot, eyes, heart, nerves and kidney, to minimize further damages. Control of diabetes is a team work between the Doctor and the Patient.

### **Know about Diabetes**

Diabetes Mellitus is a metabolic disorder characterized by hyperglycemia due to absolute or relative deficiency of insulin. There are two types of diabetes. First one is (IDDM) Insulin dependent diabetes mellitus and (NIDDM) Non Insulin dependent diabetes mellitus. Most of the diabetic are NIDDM.

Type 1 diabetes is an autoimmune disease. It is caused by the body attacking itself, and this attack leaves 'evidence' in the form of antibodies. People with Type 1 will usually test positive for these antibodies. They also usually produce little or no insulin of their own. This can be verified by means of a C-peptide test.

Type 2 is about insulin resistance. Most Type 2s still produce a good amount of insulin, but their bodies are resistant to the effects of insulin. Most Type 2s will have normal/high C-peptide and often, high circulating insulin.

<b>Parameters</b>	<b>Normal Values</b>
Fasting Blood Sugar	80-100 mg/dl
Post Prandial Blood Sugar	Up to 140 mg/dl
Glycosylated haemoglobin HbA1c	< 7%
LDL cholesterol	< 100 mg/dl
HDL cholesterol	>40 mg/dl
Blood Pressure	120/80 mm Hg

### **What is diabetes control?**

Once you find you have diabetes, check your blood sugar often to ensure whether you are standing in the safest side in diabetes scale or not. Your blood sugar levels could vary from day to day. Hence a single blood sugar value or number of values obtained on a single day may not represent your overall level of control. HbA1c test tells you the sugar levels for the previous 4 months. Less than 7% indicates good control.

### **What is HbA1c?**

HbA1c test estimates the portion of haemoglobin that is glycated. In a normal person 5 to 6% of the haemoglobin molecule should be glycated (contain sugar). But in uncontrolled diabetes, the glycated haemoglobin molecules are more than 20%. Haemoglobin has a life span of 120 days. HbA1c test reveals the glycemic control over

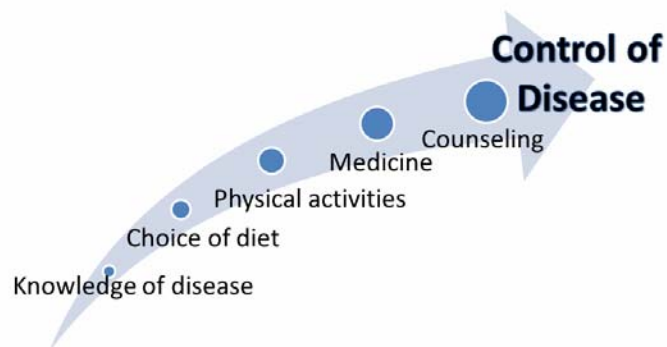
a period of 4 months without varying like that of blood sugar test values.

### **First foot, second eye**

Diabetes develops diabetic peripheral neuropathy characterized by loss sensation of touch, pain, heat or cold in the foot. Nerves in the foot are affected and develop abnormal pressure points. In these areas the skin often thickens into callus. The callus develops infection with ulcer called “Diabetic foot”. When the blood circulation is also reduced in the foot, gangrene may occur. These gangrenes ultimately lead to amputation. Diabetes affects the inner most layer of the eye, the retina. The blood vessels are thickened and block blood flow to the retinal tissue. Sometimes blood vessels may get damaged and leak blood in the retina. This condition is called Diabetic retinopathy. The central part of retina called macula is also affected. It is called Diabetes maculopathy. These two conditions lead to sudden loss of vision. Diabetic must be careful with their foot and eyes.

So diabetic should always stand on the safest side of Diabeticscale.

## **FIVE MAJOR TREATMENT TOOLS**



### **Diabetes Treatment: How it is controlled**

After finding you have diabetes, it is natural to get shocked. A few adjustments in life style will suffice. Diabetes can be controlled with dietary modifications, exercise and yoga, if found early. If your blood sugar values are very high, the above modifications are not enough. In addition, diabetic needs to take medicines. Every diabetic has a different type of signs and symptoms and every one should have a different type of treatment. There is no cure for diabetes. The goal of treatment is to control and maintain good health. This involves regular treatment, check-ups and follow-ups. Control of diabetes is related to the team work between the Doctor and the Patient. Discuss your treatment plan and target with your doctor.

### **(1) Knowledge of disease**

Diabetes education is the starting point. Diabetes classes, diabetes books, support and your health care doctor can all help you learn what you need to know now. Learn how to use other treatment tools. Learn about yourself, how diabetes affect you and your family, how to deal with your family, how to deal with your feelings about diabetes and way to find extra help when you need. So diabetic must adjust with disease and family. This helps you to find a healthy way.

Diabetes mellitus is a metabolic disorder characterized by hyperglycemia due to absolute or relative deficiency of insulin. The two types are Insulin Dependent Diabetes Mellitus and Non Insulin Diabetes Mellitus.

### **(2) Meal Planning: Choice of diet**

Food is essential to live. Choosing healthy and variety food at right amount at right time depending upon nature of work, nature of disease helps good diabetes control. The diet should be balanced and within permissible calorie limits. Food exchange makes the diet more flexible and exciting to match your taste and needs. But the calorie should remain constant.

**Eat more:** Grams, lean fish, vegetable soup, greens, salad, small onion, brown rice, wheat, lady's finger, tomato, beans, lime, bitter guard, snake guard, cauliflower, cabbage, drum stick, brinjal, bran, ragi,

fibre foods and cornflakes. Fibres are the non-digestive part of plant material which is not absorbed by the body. Fibre helps lower blood sugar and fat levels. It prevents sudden rise of glucose level, absorbs water and form bulk. Finally it gives satisfaction of eating.

**Eat Moderately:** White bread, mutton, soup, dry fruits, egg, milk, milk foods, lean meat pastries, cheese and sweet lime

**Eat rarely or occasionally:** Sugar, glucose, puddings, cake, sweet, chocolate, ice-cream, honey, ghee, dalda, pickles, jam, soft drinks, canned foods, roots, tubers, mango, banana, jack fruit, sapodilla, tender coconut and avoid tobacco products and alcohol.

**Diabetic Good Health:** In general the diabetic should use sunflower oil or gingelly oil. Aged fifties avoid mutton, egg yellow yolk and fatty oils. Roots and tubers shall be avoided. If you want tubers take it instead of rice. The flowing things are mostly avoided: sugar, honey, glucose, bakery sweets, jam, Ice-cream, banana, jack fruit, mango, sapodilla, dates, cola, alcohol, pickles and canned foods.

Diabetic has no bar on fruits. Sugars from all fruits contain fructose. To convert sugar to glucose the body requires Insulin but converting fructose to glucose the presence of Insulin is not required. But the diabetic should not take fruits often. Weak diabetic patient shall take brown milk (Horse gram boiled water). It gives more strength and stamina. This is the only grain that

has only protein but no fat. So diabetic shall take horse gram sufficiently.

### **(3) Physical Activity: Eat adequate walk more**

Exercise can help to manage your correct weight, improve your strength and lower body sugar. It includes brisk walking, jogging, swimming, yoga and games. Asana like Dhanurashana and Mayurashana increase circulation and help to utilize body sugar. Further it relaxes the mind. But patients with high glucose and blood pressure shouldn't do heavy exercise. They are recommended long walk till sweating.

### **(4) Medicine**

Diabetes is a long term challenging disease. Diabetic persons should take life time medication. They need proper guidance and long term treatment with no side effects. Early and mild cases of diabetes can be controlled with dietary modifications and exercise alone. In general, NIDDM patients whose blood sugar is on the higher side initially take oral hypoglycemic agents. On the other hand, IDDM patients take Insulin shots with the supervision of a doctor. They should check their blood sugar more often.

### **(5) Counselling and Periodic Check-up**

Of the diabetic, nearly one third of the people suffer from psychological problems at any point during their life time. These disorders as well as stress can lead to poor glycemic control through alteration in

neuro-hormones and neurotransmitter. It leads to increased risk of micro and macro vascular diseases. Hence diabetic should undergo regular counselling. The purpose of regular testing is to see how your treatment program is working and to see if any changes need to be made. Always know your current position in the diabetes scale to ensure that you are in the safest side. If you are in safest side then periodic check-up once in three months is enough. For some people, even after administrating insulin shots or oral hypoglycemic agents the disease remains uncontrolled. This stage is called **Uncontrolled Diabetes mellitus**. In such a critical position patients needs a suitable solution. Family counselling gives the remedy. We have seen how diabetes affects you and your family, how to deal with your family and how to deal with your feelings about diabetes and how to find extra help when you need support. If your blood sugar gets very low, you need glucose. Your family, friends, exercise partners and co-workers must know how to treat you, if blood glucose gets lowered suddenly. The Diabeties should not hesitate to voice your apprehensions, doubts and suggestions.

**DIABETES IS A DISORDER.  
BUT UNCONTROLLED  
DIABETES IS A DISEASE**

Diabetes Mellitus is a metabolic disorder characterized by hyperglycemia due to absolute or relative deficiency of Insulin. Early diabetes (IDDM and NIDDM) can be controlled with dietary modifications, exercise and medicines. In later stages diabetes becomes uncontrolled even though administering insulin shots or oral hypoglycemic agents with strict dietary modification and exercise. This stage is called uncontrolled Diabetes Mellitus. When your blood sugar remains uncontrolled you have a great chance of developing major health problems like heart attacks, strokes, nerve and blood vessels damage, foot or leg amputation, eye problems, kidney disease, sexual problems and general infections. In such critical position patients need a suitable solution. **SIDDHA systems is one of the indigenous medical systems which offers safe therapeutic treatment. It helps in the secretion of insulin and also increase the efficiency of insulin.**

**BIO – AQ<sup>®</sup> and Family Counselling**

BIO – AQ Diabetic Tonic Capsule & Liquid

BIO-AQ is a compound of non toxic herbal ingredients such as root, bark, stem, leaf, flower, seed and resin. It is only an herbal drug which acts on the

endocrine system. BIO-AQ increases beta-cell sensitivity to glucose. BIO-AQ stimulates the pancreas to produce more insulin and reduces the high blood glucose level. BIO-AQ prevents acute manifestations of hyperglycemia and alleviates the symptoms of excessive thirst, frequent urination, weight loss, diabetes keto-acidosis and long-term complications such as retinopathy, neuropathy, nephropathy, macro vascular diseases and reduces dyslipidaemia.

**BIO-AQ Liquid major ingredients:**

**Each 5ml contains**

Pongamia glabra – (Karanja) – 285 mgs	Melia azadirachta - 78 mgs
Gymnema Sylvestre – 285 mgs	Pterocarpus marsupium – 78 mgs
Eugenia jambolana – 285 mgs	Eclipta alba – 78 mgs
Emblca officinalis – 285 mgs	Phyllanthus niruri – 78 mgs
Tinospora cordifolia – 285 mgs	Terminalia chebula – 78 mgs
Cassia auriculata – 78 mgs	Terminalia belerica – 78 mgs
Bassia latifolia – 78 mgs	Cubeba officinalis – 78 mgs
Cassia fistula – 78 mgs	Crocus sativus – 2 mgs
Trigonella foenum – 78 mgs	Curcuma longa – 78 mgs

**Indication**

BIO-AQ: An oral hypoglycemic agent for IDDM and NIDDM\*.

**Dosage**

Take 5 to 10ml with one cup of water, morning and evening after food.

\* My clinical trials : [www.siddhadiabetes.com](http://www.siddhadiabetes.com)

**BIO-AQ Capsule 500 mgs contains each  
25 mgs of Chooranam**

Bacopa monnieri	Emblica officinalis
Celastrus paniculatus	Terminalia arjuna
Narcodachys jatamansi	Trigonella foenum
Eugenia jambolana	Withania somnifera
Bassia longifolia	Phyllanthus niruri
Melia azadirachta	Pongamia glabra
Nelumbium speciosum	Picrorhiza Kurroa
Cycas circinalis	Salacia oblonga
Pterocarpus marsupium	Eclipta alba
Gymnema sylvestre	Curcuma longa

**Indication**

**BIO-AQ Capsule**

BIO-AQ capsule is an oral hypoglycemic agent that acts on endocrine system\*, cardio-hepatic system and as a natural antioxidant.

**Dosage**

Take 2 Capsules with one cup of water, morning and evening after food.

**Scientifically Proved**

According to clinical trials\* our poly-herbal capsule BIO-AQ® is proved to decrease lipid peroxidation product levels and increase enzymic and

non-enzymic antioxidant activities. BIO-AQ® is an herbal medicine as well as herbal food with enriched Terpenoids, Flavonoids<sup>#</sup>, Tannin, Protein, Vitamins and minerals. It has no steroids.

### **The ideal diet schedule**

6.00 AM : One cup of milk or tea without sugar.

6.30 AM : Mild exercise (brisk walking) after defecation

8.00 AM : **Break fast:**

4 idlis/2 dosa sambar and chatni

(or)

2 chapatti/3 puri with chenna and have a seasonal low sweet fresh fruit slices.

Morning Dosage : 2 capsules and 10ml of B10-AQ liquid with one cup of water after food.

11.00 Am : **Snacks:** 4 Marie biscuits, Lime shots with salt or buttermilk.

\*Rajadurai, M. *et al*, 2012, "Cardioprotective Effect of 'Bio-AQ' a Poly-herbal Formulation on Isoproterenol-Induced Myocardial Infarction in Wistar Rats: A Histopathological Study", Journal of Pharmaceutical Research and Clinical Practice, Jan-March 2012 2(1) Page 38-48

web: [www.jprcp.com](http://www.jprcp.com)

**#**tested by Asthagiri Herbal Research Foundation,

web: [asthagiriherbal.org](http://asthagiriherbal.org)

- 1.00 Pm : **Lunch:** Square Meals without sweets.  
Rice 300 g with sambar, curd or fish  
curry or mutton curry.  
(or)  
Eat wheat chapatti with dhal or mutton  
curry. In general meals should be loaded  
with raw salads, steamed vegetables,  
sprouts. Diabetic needs foods that have  
a low glycemic index that are absorbed  
slowly and converted into glucose.
- 4.00 Pm : 50 g of steamed Bengal gram, horse  
gram, black gram, green gram (anyone)  
with sugar free coffee or tea and its acidic  
impact on the body can be nullified with  
lime shots to ensure alkaline environment  
in the body.  
(or)  
Vegetable Soup: (Lady's Finger Soup -  
Drum stick seed, leaf soup - Bitter guard  
Soup - Goose berry soup) any one.
- 8.00 Pm : **Supper:** 3 wheat chapatti or 3 wheat  
parota or 3 roti with chenna guruma.  
Avoid rice at night.
- Night : 2 capsules and 10ml of BIO-AQ liquid  
Dosage with one cup of water after food.
- Before bed : Brown milk (Boiled horse-gram water)  
without salt.

### **Family Counselling**

Stress is the one of the causative factors for uncontrolled diabetes. If this situation of stress becomes chronic the body keeps high glucose levels constant in the blood. Here the question is how to decrease this sugar level and stress level. Family counselling is the remedy.

## **DIABETIC FOOT**

Uncontrolled diabetes develops peripheral neuropathy characterized by loss of sensation to touch, pain, heat or cold in the foot and develops abnormal pressure points. As nerves in the foot have been affected patients are unable to feel their foot normally. In this area the skin often thickens and produces red spots or sore spots, blisters, corns and calluses. Poorly controlled diabetes can lead to accelerated hardening of the arteries. Blood flow to the foot tissues is very poor. The calluses develop infection with ulcer. Healing does not occur properly, when the blood vessels are acutely blocked stopping blood flow. The result may be localized infection with gangrene in the foot leading to amputation.

Uncontrolled Diabetes Mellitus

Nerves, Blood vessels damage

Loss of sense, Trauma

Red spots or wound

Delayed wound healing

Persistent Infection

Gangrene

Amputation

### **Cause of ulcer**

**i) Nerve damage:** Because of the nerve damage patients may be unable to feel their foot normally. When you walk on bare foot, needles, tacks, broken glass or

any hard things that can puncture your foot without sensation. That puncture can go unnoticed, painless and bleeding develops into infection and ulceration.

**ii) Foot wear:** Poorly fitting shoes or chapels are the common cause of Diabetes foot problems. If the patients have red spots, sore spots, corns, calluses the shoe irritates them. The small muscles of the foot become progressively weaker. Continuous wearing shoes tend to pull toes into a claw position. These deformities of the foot are associated with abnormal high pressure to the top of the toes and the bottom of the foot. After a prolonged walking or standing trauma and oedema may goes unnoticed resulting in a fresh ulcer.

**iii) Poor circulation:** Uncontrolled diabetes can lead to accelerated hardening of the arteries. Blood flow to the tissues is poor. Healing does not occur properly. When the blood vessels will be acutely blocked stopping blood flow to the foot muscles. The result may lead to ulcer with gangrene.

**iv) Trauma:** Any trauma to the foot can increase the risk. Local tenderness, damage of nerves and blood vessels develop ulceration.

**v) Infection:** Foot infections are the most common problem in diabetes. When diabetes patient walks barefoot, moisture between the toes aggravates

ulcer. Poor hygiene also leads to bacterial and fungal infection.

**vi) Smoking:** Nicotine poison can damage small blood vessels in the foot. In acute stage blood flow is stopped leading to ulcer with gangrene.

## **Diabetes Foot Care**

### **1. Good Diabetes Control**

- ❖ Know your disease
- ❖ Meal planning – choice of diet
- ❖ Physical activity
- ❖ Medicine
- ❖ Counselling and periodic check up

### **2. Regular foot and leg self examination**

- ❖ Examine your foot daily especially between the toes.
- ❖ Watch for abnormalities.
- ❖ Prevent dry skin, red spots, fissures and wounds.
- ❖ Trim your toe nails with a safety clipper.
- ❖ Wear shoes or sandals that fit properly
- ❖ Shoes which are comfy and with rigid sole shall be used
- ❖ Don't walk bare footed. Use mcr sandals.
- ❖ Use cotton socks.

### **3. Exercise**

- ❖ Regular exercise will improve health of foot and legs.

- ❖ Foot vibrator and magneto therapy improve the blood circulation.

#### **4. Treatment**

- ❖ Use matthan thylam (Datura alba) for chronic ulcer treatment

**Because the legs are**



## **FRUITS AND DIABETES**

Fruits are the most important healthy diet packed with fibre vitamins and minerals. Fruits have the sugar known as fructose which is monosaccharide. The glycemic index of glucose is higher than fructose which means that fructose contributes rise less blood sugar. Fructose does not require insulin to metabolize. It is converted into glucose by the liver. Some fruits are good for diabetes because they have low sugar content. On the other hand, many fruits have high sugar content. Person with diabetes may adjust the fruits intake according to the condition of disease. Fibre rich fruits are safe for diabetes patients. This is because fibre slows down the absorption of sugar into the blood stream. It has a low glycemic index. Avocado is the best fibre fruit.

### **Generally diabetic should not have fruits**

One important point to be noted is that every person is different and responds differently to the same food. The best way to determine what fruits are problematic for him is to eat it and then test glucose level after 2 hours. Those who are on oral medicine or diet control may have to be more restrictive in fruits. If you want fruits take it instead of main food.

The following fruits help to control blood sugar level due to their low glycemic index. They promote a gradual increase into the blood sugar level with a highly beneficial effect to diabetic.

Jambul	Apple
Guava	Grapefruit
Papaya	Strawberries
Ice apple	Cashew fruit
Lemon	Sweet lime

Consumption of certain fruits can be a little dangerous for people suffering from diabetes. They have a high glycemic index that can cause sudden increase in blood sugar level.

Banana	Dates
Grapes	Water melon
Orange	Mango
Pineapple	Pomegranate
Dry fruits	Figs
Jack fruit	Custard apple

### **Easy way to eat more fruits**

1. Cut slices of raw fresh fruits with peel on cold cereal.
2. Add dry fruits when cooking hot cereal.
3. Mix fruits with vegetable salad.
4. Bowl of fruits slices with lemon or ginger juice.
5. Banana and guava shall be eaten in semi-ripe stage.

☞ However all fruit juices should be restricted because they contain too much sugar without fibre.

- ☞ Avoid fruits in the morning because blood glucose will be higher in morning than other times in the day.
- ☞ Avoid fruits after full meals.
- ☞ Dry fruits should be avoided as they contain higher levels of fat and sugar.

## **OBESITY AND DIABETES**

It is a chronic condition defined by excess amount of fat in the body indicating morbidity. A certain amount of body fat is necessary for storing energy, heat insulation, and shock absorption. The normal amount of body fat is between 25% to 30% in women and 18% to 23% in man.

Height to weight ratio of a person can be represented by Body Mass Index (BMI). The calculation of body mass index equals a person's weight in kilograms divided by their height in meters squared. Obesity is defined as a BMI of 30 and above.

$$\text{BMI} = \frac{\text{Weight in kilograms}}{(\text{Height in meter})^2}$$

**Example:** For a person with weight 70 kg and height 1.71 meter. His BMI is calculated as

$$\text{BMI} = \frac{70}{1.71^2} = 23.93$$

### **BMI Range:**

< 16	: Severely under weight
16 – 18.5	: Under weight
18.5 – 25	: Normal
25-30	: Over weight
30 – 35	: Class I obese
35 – 40	: Class II obese
> 40	: Class III obese (super obese)

## **Obesity and health risk**

Obesity is a significant health threat. The extra weight puts added stress on all parts of the body. Untreated obesity leads to metabolic disorders, **diabetes**, high blood pressure, heart disease, sleeping disorders, cancer and osteoarthritis.

## **Insulin resistance**

Insulin resistance is a condition in which effectiveness of insulin in transporting glucose into the cells is diminished. Hence serum glucose level increases. Fat cells are more resistant to insulin. Hence obesity is a major fact for insulin resistance diabetes or type II diabetes. The risk of type II diabetes increases with the degree and duration of general obesity and central obesity. Excess of fat around waist is known as central obesity. Central obesity is generally called pot belly. Central obesity is related with endocrine disorder such as hypo-thyroidism.

## **Causes**

**1. Genetics:** If father and mother are obese then the child may be obese. This is due to genetic factor. For example fat cells secrete a hormone leptin which acts on brain and signals brain to eat less. But in genetic disorder the hormone leptin is not secreted and control is lost. Hence become obese.

**2. Fatty foods:** Oil fried foods especially using reheated oils, junk foods, fast foods, baked foods, red meats, and pork.

**3. Carbohydrate foods:** Sweets, cream, a diet rich in carbohydrate such as rice, maize, starch water as in case of poverty, soft drinks, ice cream, beer, wine. Simple carbohydrates are more absorbed than complex carbohydrates.

**4. Bulk meals:** Frequency of eating is not concerned with obesity. Moreover eating small meals 4 or 5 times / day is better than bulk eating. This is because small meals with 4 or 5 times produce stable insulin level where as bulk will produce a large spike after meal.

**5. Gender:** Women have fewer muscles than men. Muscles play an important role in the burning of calories. Hence the metabolism is more in men than women. This is why females are more prone to obesity than men.

**6. Physical inactivity:** This is the major fact for obesity. People with sedentary life burn less calories and store the surplus as fat and get obese.

**7. Disease:** Hypothyroidism, polycystic ovary syndrome, Cushing syndrome.

### **Treatment**

There is no magic cure for obesity. One should follow regular exercise with dietary modification. Try to balance the calorie intake with physical activity. The goal of treatment is to achieve a healthier weight not an ideal weight. The most effective method for weight

loss is reducing the number of calories you consume and increasing the number of calories you burn through physical activity. For example if you reduce an additional 500 calories each day for a week you will loose one pound (454 g) of weight.

One method you could use is calculating the amount of calories your body requires every day to perform its main functions as well as the added exercise and then following a diet plan that gives you the calculated amount of calories. This will ensure that excess fat cells do not build up within the body. The exercise will help converting any existing excess fat in the body into energy and help tone the body as well

**Given below are easily available healthy foods that should be incorporated in a weight loss diet but also reducing risks of disease. The reasonable weekly goal for weight loss is about 1/2 to 2 pounds in first week.**

- ☞ Take any one of these in early morning: warm water with non boiled honey, lemon juice, tomato juice, carrot juice, orange juice, tender coconut water, a cup of skimmed milk.
- ☞ Eating 5 g curry leaf daily for 4 months will help reduce weight.
- ☞ Drinking about 2 cup of green tea every day helps boost the metabolism and suppress abdominal fat accumulation.

- ☞ Soaking liquorice in water over a course of night and drink the water first in the morning liquorice flavonoids can suppress abdominal fat accumulation.
- ☞ In lunch add green salads or steamed vegetables like cucumber, carrot, beet root, onions, tomatoes, grapes, and high quality protein which is low in fat like horse gram (no fat), below 1.5 kg chicken, lean fish, brown rice, whole grains and cereals (low sugar), fibre foods, quinoa barley, oats bran and oats.
- ☞ Taking 5g *Spermacoce hispida* (Naththaichuri) daily for 4 months will help reduce weight. (antihyperlipidemic)
- ☞ Add turmeric powder (*Curcuma longa*) and garlic (*Allium sativum*) in your daily cooking to help fat and weight reduction
- ☞ Lavangam bark (*Cinnamomum verum*) (Karuvappattai) and black pepper (*Piper nigrum*) (nalla milagu) Kanthari milagu (*Capsicum frutescens*) not only enhances the flavour of your food items but also help in controlling obesity and burning excessive fat.
- ☞ *Terminalia chebula* (kadukkai) *Terminalia bellirica* (Thanttikai) *Emblica officinalis* (nellikkai) *Crataeva nurvala* (Maavilingam tree) *Salacia oblonga* (Ponkoranti) *Dolicus biflorus* (Kollu)

Garcinia indica (Pazham pazhi) Commiphora mukul (Kukkul). These traditional medicines are use for obesity and Diabetes, and have been extensively consumed in India and other countries as a food supplement for the prevention of diseases.

- ☞ Sleeping during day time, alcohol and smoking should be avoided.
- ☞ Exercise is must for burning fat. Do some breathing exercises, yoga and asana to maintain good shape of body and healthy mind.

## **PRE-DIABETES**

Pre-diabetes is a stage between normal and diabetes stage. It is a sign for upcoming diabetes when your blood sugar level triggers higher than normal. Person's blood sugar levels are higher than normal but not high enough of a diagnosis of type-2 diabetes. It is a stage before the development of diabetes. If neglected pre-diabetes may lead to type II diabetes within ten years.

**Causes:** Family history of diabetes, genetic factors, metabolic syndrome, obese, impaired fasting glucose, impaired glucose tolerance, insulin resistance, blood pressure, stress, increased triglycerides, lack of physical activities, excessive use of steroids, contraceptives and strong pain-killers are the main causes for pre-diabetes.

There are two different tests, use to determine whether you have pre-diabetes. They are the fasting blood sugar test and the oral glucose tolerance test. The blood sugar levels measured after these tests determine whether you have a normal metabolism or whether you have pre-diabetes or diabetes. If your blood glucose level is abnormal following the fasting blood glucose test, you have impaired fasting glucose. If your blood glucose level is abnormal following the oral glucose tolerance test you have impaired glucose tolerance.

Blood glucose of 100 to 126 mg/dl after 10-12 hours fast is referred to as impaired fasting glucose.

A postprandial blood sugar of 140 to 179 mg/dl (2 hours after) OGTT is referred as an impaired glucose tolerance.

<b>Blood sugar test</b>	<b>Normal</b>	<b>Pre-diabetes</b>	<b>Diabetes</b>
Fasting plasma glucose	<100 mg/dl	100-126 mg/dl	>127 mg/dl
2 hours oral glucose tolerance	< 140 mg/dl	140-179 mg/dl	>180 mg/dl

### **Sign and symptoms**

Pre-diabetes typically has no sign and symptoms. Patients should monitor the following signs. Constant hunger, frequent urination, weight loss, weakness and fatigue, slow healing of cuts, UT infection, palm numbness. People with a severe form of insulin resistance may have dark patches or dark ring on the back of neck or around the neck, elbows, knees, knuckles, and armpits. This condition is called acanthosis nigricans.

People with pre-diabetes can prevent the development of type II diabetes by making simple lifestyle change in their diet and increasing their physical activity. They may even able to return their blood glucose levels to the normal stage.

### **Treatment**

The goal of treatment is prevention or to delay. 90 % of people with pre-diabetes can prevent the

development of diabetes by making diet control and physical activity. Losing weight may be hard but you can do it. 10% reduction of body weight brings about 80% reduction of pre-diabetes.

### **Medicine**

BIO-AQ and Family counselling

## **GESTATIONAL DIABETES**

Pregnant women who never had diabetes but having high blood sugar level during pregnancy are said to have gestational diabetes. However after the baby is born glucose level usually to normal. This is because during pregnancy increase level of certain hormones leads to impaired glucose tolerance. Hence it comes under insulin resistance diabetes. It usually has no symptoms. Pregnant women should have a glucose screening test between twelfth to sixteenth weeks of pregnancy. If you get a positive result it means you have gestational diabetes.

**Treatment:** BIO-AQ helps in maintaining the normal hormonal level and maintains gestational diabetes.

## **FESTIVALS AND DIABETES**

Festivals bring joy and happiness in our life. If we celebrate all festivals alike we can spread the happiness and humanity among one another and live as one family. Each and every month of the year bring different ranges of festivals. Some festivals welcome seasons of the year; some are religious and cultural festivals. Every festival is centred around prayer, seeking blessings, exchanging good will, wearing new clothes, cultural and final feast with full of sweat and special foods.

### **Religious festivals fasting**

Fasting at festivals is common. Hindus all over India observe fast on festivals like Navaratri fast (nine days), Durga Puja (eight day fast) and Sasti (six day fast). Fast on certain day of the month such as Purnima fast, full moon fast and Ekadasi fast. Certain days of the week is also marked for fasting depending individual choices. In South the Holy shrine in Sabarimala the pilgrim take fast forty eight days. Lent is the period of Ash Wednesday to Easter. It is a period of forty days period of fasting. Simple fast may consists of merely avoiding certain foods for a day or more. A moderate fast would involve avoiding heavier food. In this long period people take only cereals and fruits. Ramadan is the Islamic month of fasting in which the participating refrains from eating, drinking and intimacy with their partners during day light hours. The Eid falls

after 30 days of fasting. Upavasa is another name of continuous fasting.

Scientifically fasting plays an important part in the recovery from Type II Diabetes. It acts as an important therapeutic modality to prolong life in diabetes patients. Fasting helps in weight loss; reduces obesity, high blood pressure, depression, elimination of excess cholesterol, Triglycerides and improves every aspect of one's health. Do not allow type I diabetes to go on a fast. Fasting could not improve the condition in type I diabetes. If the fast is used correctly in type II diabetes it increases beta-cell sensitivity to glucose. This can restore integrity to the pancreas and allow it to re-establish its sensitivity to glucose.

#### **Phases of fasting:**

I Phase: This is gastrointestinal phase, which lasts for six hours following your fast. The body use glucose, amino acids, fat that are absorbed from the intestinal tract.

II Phase: If the fast continues after 6 hours the body will use its glycogen (sugar) reserves that are stored in the liver are convert into glucose to ensure. Then the body begins to convert adipose (fat) tissue into fatty acids.

III Phase: The body's protein reserve is quickly depleted into amino acid. If the fast continues beyond that period it leads to starvation leading to death.

### **Benefits of festivals and fast:**

- ☞ Stress relieving from a hectic work season.
- ☞ Meeting of family members and friends refresh us.
- ☞ Festival fasting initiates rapid weight loss.
- ☞ Festival fasting helps to initiate a good diet control.
- ☞ Fasting gives the digestive system a much needed rest.
- ☞ Fasting corrects the high blood pressure and stress.
- ☞ We often consume too much unhealthy foods. (Animal fats, refined sugar, carbohydrates, caffeine, tea, alcohol, nicotine, soda, agricultural toxic products including poison such as dioxins, pesticides residues and other pollutants). Fasting promotes detoxification.
- ☞ Festival fasting maintains a diet of rationality which is the basis for good blood sugar control.

### **Disadvantages of festivals**

#### **for people having diabetes:**

- ☞ The word festival means feast day. Religious festivals are ending with some special foods and sweets. Therefore the festivals confuse and mislead the diabetic from their normal day to day lifestyle.
- ☞ But in some people the festival ends with alcohols. They may take alcohol diluted more with water.

If you are a diabetic, planning on fasting, speak with your diabetes team to forehand. They will advice you on how to keep good diabetes control throughout the fasting period. Today every one is busy and unable to celebrate festivals and fast, which is bad. The elderly, chronically ill, mentally sick are exceptional from fasting.

## **SEX AND DIABETES**

Sexual health is important for human to ensure good overall circulation, reduce stress and provide natural pleasure. Everywhere we see Love and sex. However sexual health can suffer due to impotence (erectile dysfunction), premature ejaculation, retrograde ejaculation and being unable to have on orgasm during intercourse. In most of the case impotence can be mind related or prolonged period of Diabetes Mellitus. The cause is that you're just not getting enough blood circulation into your penis. Premature ejaculation can be due to anxiety, lack of good sex and even not being with an understanding partner. Retrograde ejaculation is a sexual problem where all or part of a man's semen goes into the bladder instead of penis during ejaculation. It is also associated with nerve damage related to uncontrolled blood sugar.

### **Diabetic neuropathy**

In man long term diabetes can damage the nervous and circulatory system which may result in erectile dysfunction and be unable to get or maintain an erection. 50 % of man with diabetes will suffer some kind of sexual problems or loss of sexual desire.

In women with diabetes have some problems with arousal. The clitoris may not respond to stimulation in the normal way. They suffer from vaginitis which is usually due to yeast infection. This makes painful sex,

itching, burning sensation and white discharge. Autonomic neuropathy can also gradually decrease sexual response in man and women although the sex drive may remain unchanged. In man unable to reach climax and in women difficulty with arousal or orgasm is the problem.

Diabetes may affect sexual functioning in several ways. Menstruation problems, lubrication, and impotence are the major issues. Male either having chronic diabetes or diabetes that has not been well controlled suffer impotence. If you have diabetes for several years your ability to enjoy sex may not be what you want it to be. Almost half of all women with diabetes experience sexual problems.

**If you're living with diabetes ways to prevent or control sexual problems**

**1. Control glucose level**

The best way to prevent neuropathy is to keep your blood sugar levels as close to normal range as possible. Maintaining safe blood sugar levels protects nerves throughout your body. This reduces the risk of cardiovascular, blood vessels, nerve damage which can make lubrication, arousal, erection, orgasm more to achieve.

**2. Control cholesterol levels**

It reduces cardiovascular damage which can impair blood flow and interfere with erections and orgasm.

### **3. Control blood pressure**

Less than 130/80 mm Hg is the recommended values. If you have high blood pressure the arteries that supply blood to the penis cannot dilate properly and the smooth muscles in the penis aren't able to relax. These two problems prevent sufficient blood from flowing into the penis to make it erect.

### **4. Control smoking and alcohol**

Smoking and taking alcohol is far more damaging for people with diabetes including lack of lubrication, low libido and erectile dysfunction.

### **5. Regularly exercise**

Exercise can help to manage you correct weight, improve strength and lower body sugar. It includes brisk walking, jogging, swimming, yoga and games. Asana increases circulation and help to utilize body sugar and relaxes the mind.

### **6. Food for better sex**

- ☞ Celery (ajmada leafs): It is one of the most effective foods when it comes for sexual stimulation. It is full of a hormone called androsterone which helps increasing sexual drive.
- ☞ Spicy foods: Spicy foods are the most effective when it comes to sexual stimulation.

- ☞ Nuts: Peanuts, cashews, walnut, badam, pista are rich in proteins and minerals they perk sexual desire and stamina in both sex.
- ☞ Figs: Good health for heart and a great way to rev your sexual stamina. It is a perfect fertile food.
- ☞ Avocado (butter fruit, vennai pazham) these fruit contain full of energy and rich fat with folic acid which help in metabolizing proteins in the body thus giving you more energy when you need. It increases overall health leading to higher sexual stimulation in both sexes.
- ☞ Oyster help in setting the mood and increasing the quantity and quality of sperm in men. It is the top rank aphrodisiacs (Cippy curry).
- ☞ Garlic is one of the ways to treat sexual problems. Add raw semi boiled garlic on a daily bases in your daily diet.
- ☞ Small onion is another good diet for sexual stimulation. It increases libido and strength.
- ☞ Half boiled egg with pepper once a day helps increase sexual stamina.
- ☞ Badam or musli milk helpful in improving sexual vigour
- ☞ Asparagus root powder or ashwagantha root powder ten grams with a cup of milk two times a day is useful in treating impotency and premature ejaculation.

- ☞ Drink drumstick flowers or seeds boiled in milk cures impotency, premature ejaculation, spermatorrhoea (nocturnal emission).
- ☞ Dates, almonds, pista, cashew consumed on a daily basis is said to increase sexual power.
- ☞ Withania somnifera (ashwaganda), Mucuna pruriens (Poonakkali vithai) Eurycoma longifolia (tongkat ali) Ferula nermonis (Lebanon sinsang) Muria puama (Potency wood) Catuaba, Ginseng are impotency drugs for both sexes. These have been used historically in regions as an aphrodisiac.
- ☞ Mahabooranathileghyam 10gm 2 times a day

### **Sexual counselling**

Counselling and sex therapy are some times effective in helping patients with minor sexual problems, especially when these are caused due to sexual ignorance and psychological factors.

## THYROID AND DIABETES

Endocrine system is a collection of glands. They are ductless which means that their secretion is released directly into the bloodstream and travel everywhere in the body through blood. The major endocrine glands are Hypothalamus, pituitary gland, Thyroid gland, Pancreas, Adrenal gland, Gonads or sex organs and Pineal gland. Thyroid is an organ which is located in front on the neck in front of the voice box and it has a shape of a butterfly. It secretes two hormones with the help of iodine namely  $T_3$  and  $T_4$ . Thyroid Stimulating Hormone (TSH) is a hormone produced by pituitary gland. It regulate the production of  $T_3$  (Triiodothyronin) and  $T_4$  (Thyroxin). They are very vital to normal physical and mental growth of human and regulate many important body functions including reproduction and metabolism.

If the hormone production is not enough, the condition is said to be hypothyroidism. The signs and symptoms are

- |                        |                          |
|------------------------|--------------------------|
| * Cold intolerance     | * Loss of growth         |
| * Sudden weight gain   | * Irregular menstruation |
| * Constipation         | * Infertility            |
| * Hoarseness of voice  | * Miscarriages           |
| * Goitre               | * Myxedema               |
| * General weakness     | * High LDL               |
| * Loss of equilibrium  | * Depression             |
| * Difficult to swallow | * Facial puffiness       |

Hypothyroid	$T_3 \downarrow$	$T_4 \downarrow$	TSH $\uparrow$
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If the hormone production is more than the requirement the condition is said to be Hyperthyroidism. The signs and symptoms are

- \* Weakness
- \* Sudden weight loss
- \* Diarrhea
- \* Goitre
- \* Nervousness
- \* Heat intolerance
- \* tremors
- \* Sweating
- \* low LDL
- \* tachycardia

Hyperthyroid	$T_3 \uparrow$	$T_4 \uparrow$	TSH $\downarrow$
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These two conditions are due to variation in the functional activity of thyroid gland. Diabetes patients have a higher prevalence of thyroid disorders compared with the normal population. **Patients with one organ specific autoimmune disease are at risk of other autoimmune disorders.** Thyroid disorders are more common in females.

### **Thyroid problems and diabetes are sometimes closely connected to one another**

- ☞ Both diabetes and thyroid disorders involve a dysfunction of the endocrine system.
- ☞ Almost one third of people with type I diabetes have been found to have thyroid disease. This is because type I diabetes and the most common thyroid disorders are autoimmune diseases which are diseases in which the immune system attacks a gland or organ of the own body.

- ☞ Thyroid disorders are also common in type II diabetes because both of these illnesses tend to occur frequently in old age.
- ☞ Thyroid disorders can have a major impact on glucose control.
- ☞ Hypothyroidism decrease insulin in patients with diabetes and may worsen glucose control.
- ☞ Symptoms of hypothyroidism are common in patients with type II diabetes.

### **Hypothyroidism can lead to Diabetes**

Hypothyroidism is a condition where the thyroid gland does not produce enough hormones to stimulate metabolism, making all of the body's system slower. It also affects insulin production. The pancreas slows down its ability to turn blood sugar into energy. This complication leads to diabetes. Hypothyroidism can be treated before it develops into diabetes.

Hyperthyroidism can also cause diabetes by over stimulating the pancreas and destroying the pancreatic islets.

<b>Tests</b>	<b>Normal Range</b>
Thyroid stimulating hormone TSH	0.3-3.0 $\mu$ u/ml
Serum Triiodothyronin T <sub>3</sub>	0.8-1.8 $\mu$ g/l (80-180 ng/dl)
Serum Thyroxin T <sub>4</sub>	46-120 $\mu$ g/l (4.6-12 $\mu$ g/dl)

## **Treatment**

**Medicine:** BIO-AQ®

**Foods:** Brassica vegetables(kadughu family) – broccoli(green pou coose) – cabbage(muttai coose) - cauliflower(pou coose) – turnips(oodha mulanghi) - soybeans-garlic- mushrooms - sesbania grandiflora(Agathi) – moringa(murungai) – fennels(sombu) – hyssop(brimi) - pine apple – licorice(adhimaduram) - onion - sea foods - brinjal - banana flower. Eugenia jambolan (Naval)

## **DIABETES AWARENESS**

Many diseases however don't produce obvious symptoms until they are well developed. In such cases we unknowingly allow the disease to develop and invite complication. Diabetes is one of the diseases which enter with silence.

India stands first in diabetes because of the high genetic susceptibility and western food habits. Indian gets diabetes ten years earlier. World Diabetes Day is celebrated every year on November 14 and was established by the International federation of Diabetes and World Health Organization. The aim is to improve awareness about diabetes to people who are having diabetes. The health care community, health educators, parents and guardians should have an intention to create awareness and convey seriousness of the condition and motivate people for appropriate treatment and lifestyle modification. Massive diabetes education programs are urgently needed in South. Everyone should be aware of complications of diabetes such as diabetic foot problems, eye problems, kidney disease, hypertension, heart disease, stroke and amputation.

### **Know about diabetes:**

Diabetes education is the starting point. Diabetes classes, diabetes books and your healthcare doctor can help you learn about diabetes and how it affects you and your family, how to deal with your

family and how to deal with your feelings about diabetes and how to find a way to healthy life.

Diabetes mellitus is a metabolic disorder characterized by hyperglycemia due to absolute or relative deficiency of insulin. The two types are Insulin Dependent Diabetes Mellitus and Non Insulin Dependent Diabetes Mellitus.

Type 1 diabetes is an autoimmune disease. It is caused by the body attacking itself, and this attack leaves 'evidence' in the form of antibodies. People with Type 1 will usually test positive for these antibodies. People with Type 1 also usually produce little or no insulin of their own; this can be verified by means of a C-peptide test.

Type 2 is about insulin resistance. Most Type 2s still produce a good amount of insulin, but their bodies are resistant to the effects of insulin. Most Type 2s will have normal/high C-peptide and often, high circulating insulin.

### **If you are living with Diabetes...**

Once you find that you have diabetes don't hesitate to discuss with your doctor. Good control of diabetes can prevent most diabetes complication. Keeping blood sugar below the recommended values is the most important thing you should do. Once diabetes affects the nerves and blood vessels it is often not possible to bring the patients back to a normal state.

Control of diabetes is related to the team work between the doctor and the patient.

### **1. Control glucose level: choice of diet**

Food is essential to live. Choosing healthy and variety food at right amount at right time depending upon nature of disease helps diabetes control. The most important nutrients in foods are protein, carbohydrates, fats, vitamins and minerals. All these are essential for everyone's life. Proteins are necessary for development and growth. The most important sources of proteins are lean meats, chicken, fish, low fat dairy products, and grains. Carbohydrates are important for energy. Patients should eat less sugar and fruits. Grains and seed have a thick capsule. When you eat the whole grains they barely raise blood sugar. Foods made from flour also cause high rise in blood sugar. Fat is necessary for storing energy, heat insulation and shock absorption of the body. Always use low fat meats and oil foods. Magnesium rich food plays an important role in carbohydrate metabolism and influences on the release and activity of insulin. Spinach, almonds, lentils, seeds of pumpkin and sunflower oil has more magnesium. The diet should be low in salt. Too much salt can increase blood pressure. The food should be prepared using low fat methods such as baking. Diabetic should use sunflower oil or gingelly oil. Aged fifties should avoid mutton and yellow yolk, fatty oils. Roots and tubers are generally avoided. If you want tubers take it instead of rice. The following things are mostly avoided:

sugar, glucose, bakery sweets, jam, ice-cream, banana, mango, jack, pickles and alcohol. Refined products (white foods) consist of high amount of simple carbohydrates containing lots of sugar. Fresh fibre fruits and vegetables will always help preventing diabetes. Fibre is very effective at lowering blood sugar level. It works by lowering the body's processing of carbohydrates. Diabetic has no bar on fibre fruits. Sugar from all fruits contains fructose. To convert sugar to glucose the body needs insulin but converting fructose to glucose the present of insulin is not required. Even though fruits should not be taken in diabetes too often

## **2. Physical activity**

Exercise can help to manage your correct weight, improve your strength and lower sugar. It includes brisk walking, jogging, swimming, yoga and games. During exercise muscles draw sugar from the blood stream without insulin. This is the only way to reduce body weight and sugar level. Weight loss is very essential for people with diabetes. Over weight is risk for diabetes complications. This is because they develop a high resistance in the body for insulin. Patients with high glucose and high blood pressure shouldn't do heavy exercise. They are recommended for long walk still sweat.

## **3. Medicine**

There is no cure for diabetes. The goal of treatment is to control and maintain good health.

Diabetic should take life time medication. They need proper guidance and long term treatment with no side effect. Early and mild cases of diabetes can be controlled with dietary modification and exercise alone. In general NIDDM patients whose blood sugar is on the higher side initially should take hypoglycemic agents. On the other hand IDDM patients should take insulin shots with the supervision of a doctor. Medicines should do two main tasks of controlling blood sugar and also it should promote body health

**Drugs for Controlling Blood Sugar:**

Curcuma longa (Manjal)  
Melia azadirachta (Vembu)  
Eugenia jambolan (Naval)  
Salacia oblonga (Ponkuranti)  
Picrorhizo kurroa (Kaduga rohani)  
Pongamia glabra (Pungambu)  
Gymnema sylvestre (Siru kurunjan)  
Pterocarpus marsupium (Venkai)

**Drugs for Health Boosters:**

Bacopa monnieri (Premi)  
Narcodochys jatamans (Jadamanchi)  
Nelumbium speciosum (Thamarai)  
Terminalia arjuna (Maruthem)  
Phyllanthus neruri (Keezha nelli)  
Curcuma longa (Manjal)

Withania somnifera (Amukkara)  
Trigonella foenum (Venthayam)  
Emblica officinalis (Nellikai)

Diabetic should take both natural drugs (foods) which control blood sugar and also rejuvenate internal organs (health boosters). **They increase the beta cell sensitivity to glucose and restore the integrity of pancreas.** If not controlled by natural drugs, oral hypoglycemic agents shall be taken. In case of type I diabetes in addition to the natural drugs insulin shots should be taken under the supervision of physician.

#### **4. Periodic check-up and counselling**

The purpose of routine testing is to see how your treatment program is working and to see any changes need to be made. Always know your current position in the diabetes scale to ensure that you are in safest side. Many people with diabetes struggle with hypoglycemia on a regular basis. They suffer with hypoglycemia 1-3 times per month when treated with insulin. Blood sugar becomes too low with pounding heart, hunger, sweating, and confusion. So diabetic do no hesitate to voice your apprehensions, doubts and suggestions.

- ☞ Don't walk bare footed. Wear shoes or chapels fitting properly. Shoes which are comfy and with rigid sole shall be used
- ☞ Periodic check-up once in a year for eyes

- ☞ If your blood sugar gets too low (hypoglycemia) you need glucose. Then your family friends, exercise partners and co-workers must know how to treat you in this condition. So diabetic must have a diabetes card.
- ☞ If you have diabetes and going on traveling for business or vacation tour you just have to do some extra planning.

### **If you are living with pre-diabetes...**

Pre-diabetes is a stage between normal and diabetes stage. Person's blood sugar levels are higher than normal but not high enough for a diagnosis of type II diabetes. It is a sign for upcoming diabetes.

A confirmed pre-diabetes should be under the care of a physician. The physician will encourage diet modification, physical exercise and weight loss in addition to treating high blood pressure and lipid problems. They may even able to return their blood glucose levels to the normal stage.

Avoid fried foods, junk foods, fast foods, bakery foods; red meats esp. foods fried using lards and pork. Use foods cooked in earthen pot. It removes the toxic pesticide residues.

- ☞ Reduction of 10% of body weight will reduce 80% of pre-diabetes to develop into diabetes
- ☞ Avoid soft drinks, sweeteners, and oil fried items.
- ☞ Eliminate smoking and drinking alcohol.

- ☞ Eat adequate and walk more till sweat.
- ☞ Asana like Dhanurashana and Mayurashana increases circulation and help to utilize body sugar to low level and relaxes the mind.
- ☞ Periodic check-up once in three month ensure that you are in the safest side or not.
- ☞ Good bye to sleeping during day time

### **How to prevent diseases**

We tend to meet a Doctor when we feel some discomfort. Otherwise persons are not interested to meet doctor for health problems. General health profile should be done regularly after 40 years of age. **The major problem is that we are living an artificial life. Many of the problems can be prevented if we live along with nature.**

### **Stress free family**

- ☞ Morning fitness makes fresh and free.
- ☞ Turn off TVs during meals and enjoy the full taste of the meal.
- ☞ Physical activity and evening walking gives flexibility and relaxation to mind.
- ☞ Family get together, round meals, arattai makes gives pleasure and relief.
- ☞ Sleeping is important for people of all ages. Getting enough sleep keeps you off from disease.

☞ Sexual health is important for human to ensure good overall circulation, reduce stress and provide nature pleasure.

### **Does and Don'ts**

Many fear the word diabetes rather than the disease diabetes. Diabetes mellitus is not a disease. It is only a metabolic disorder. Only uncontrolled diabetes is a disease. This confirms that many people don't know about diabetes. When someone who don't know about diabetes hears that he has diabetes there are two mind sets.

Some group of people thinks that they are already diseased. Hence they should eat well and enjoy the rest of the life. These people in course of time get worse and the ultimate result will be amputation and loss of eye sight.

Some group of people take too much of precautions and they don't eat enough. These people also get worse.

But people with adequate knowledge knows that diabetes is not at all a disease and can be controlled with slight dietary modification and exercise.

Diabetes is related to food. Hence dietary modifications are necessary. Every diabetic worries about the disease and the dietary schedule makes the condition even worse. The patient and the family member should know what are good and bad dietary habits. The recommended balanced diet is 1:2:4 ratios

of carbohydrates, proteins and vegetables. **The quality of food should depend on taste. All the six taste should be included in the diet.**

Diabetic shouldn't eat sweets. Festivals are such a challenge for the diabetic as sweets are arranged in front of their eyes. Hence diabetic should have morale courage. Though diabetic shouldn't eat sweets they can taste it. This gives them satisfaction and a feeling that they are also part of the family. This also relieves them from stress and loneliness.

Diabetic should be honest to himself. Though they can taste sweets they shouldn't develop the habit of eating sweets, when they are out of station or the relatives not at home. If they eat sweets they lose their dietary control which is the key for diabetes control. They betray themselves not others. Hence one shouldn't have this kind of attitude.

Nowadays diabetic always have hypoglycemic agents with them. They take sweets in functions even though they know they shouldn't. After their stomach is filled with sweets they take tablets and think sweets + hypoglycemic tablets = 0 sugar. Prevention is always better than cure. Nobody likes T.B even though there is DOTS for T.B

### **Diabetic Oath**

Everybody knows the fact that human cant be fulfilled. Even though with counselling diabetic refuse to accept the fact. Hence they should take an oath to themselves. **"I have eaten everything in the market.**

**What they are eating now is already eaten by me. The new items in the market are the same I have already eaten with the size and colour changed.**

### **Siddha Concept**

**Therayar Siddhar** has recommended certain basic guidelines in his manuscript Padhartha Guna Chinthamani, Pini Anugaa Vidhi, Kaayakarpam for prevention of diseases depending upon habitat, seasons and diets. It proves not only preventive but also adaptive.

### **Kaya karpam (Gerontology)**

Kaayakarpam means rejuvenation and longevity of life. It gives prevention against disease and restoration of health during illness. Thus it is preventive as well as constructive.

### **Concepts regarding habitat and season**

#### **(Kaala ozhlukam)**

Adapting seasonal habits protects us from disease. It also increases the immunity.

#### **Pini Anugaa Vidhi (prevention of disease)**

- ☞ Drink fresh water stored in copper vessels
- ☞ Take meals twice a day.
- ☞ Take diluted buttermilk and melted ghee.

- ☞ Take sufficient quantity of milk.
- ☞ Never eat root tuber except yam.
- ☞ Never consume food that was prepared the previous day.
- ☞ Always have food after feeling hungry
- ☞ Always consume sour curd.
- ☞ Practice walking after meals
- ☞ Drink water at the end of meals
- ☞ Use hot water while taking on oil bath
- ☞ Never suppress any natural urge.
- ☞ Never sleep during day.
- ☞ Always indulge in healthy sexual acts.
- ☞ Take emetic medication once in six months.
- ☞ Take purgative medication every four months in a year.
- ☞ Take oil bath once in every week
- ☞ Never sleep under a tree. Never reside close to dust.
- ☞ Never smell fragrance during midnight.
- ☞ Eat foods from farms. (field)
- ☞ Avoid factory foods. (Ready made foods)

### **Daily Regimen (Dina Ozhlukam):**

#### **Early to bed and early to wake:**

The early morning silence gives happiness to mind. It's the apt time to walk. Early morning meditation is powerful to reduce stress. A fixed schedule of getting up

early as well as to sleep is very important for the body to stay healthy.

Seeing auspicious things such as mirror, lotus, gold etc. gives happy to the mind.

Drinking water in empty stomach helps in the reduction of body temperature and acidity. Then go for a walk.

### **Yogasana:**

Yoga brings stability to the body and wavering mind. It includes asana which means body posture. Hence yogasana means using different postures to bring stability to the wavering mind. It gives flexibility to the body as well as stress free mind.

### **Oil Bath:**

South Indian people living in villages have a traditional healthy habit of taking oil bath periodically. The ideal day for oil bath is Saturday for men and Friday for women. It also helps to refresh the body and reduce the body temperature.

### **Method of eating:**

At first eat sweet followed by sour, salt, and pungent tastes. Then finish by eating astringent and bitter tastes. Eat half stomach food and quarter stomach liquids after food. . Those who eat once a day are called yogi, twice are called bogi and more than twice are

called rogi. Eat only after the previously taken food is digested. Eat slowly.

### **Sleeping:**

People should go to bed early and should use left decubitus position while sleeping. Sleeping is important for people of all ages. Getting enough sleep keeps you off from disease.

### **Save Yourself**

Everybody have their own time. **Hence diabetic should know how to prevent themselves.** He should always know where he is in the diabetic scale. If not in the safest side of diabetic scale they should have

- ☞ Adequate knowledge about diabetes
- ☞ Food practice
- ☞ Daily exercise
- ☞ Regular check-ups
- ☞ Much care for foot and eyes.
- ☞ Diabetes I.D. card