

# DIABETES MONITOR

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## 'WORLD DIABETES DAY' CELEBRATION BY DR. MOHAN'S DIABETES SPECIALITIES CENTRE

The World Diabetes Day was celebrated globally on 14<sup>th</sup> November, 2013. The World Diabetes Day was created by International Diabetes Federation (IDF) and World Health Organization (WHO), with the aim of coordinating diabetes advocacy worldwide and the global awareness campaign of the diabetes prevention and care. Diabetes Education and Prevention is the World Diabetes Day theme for the year 2013.

As Dr. Mohan's Diabetes Specialities Centre and Madras Diabetes Research Foundation are designated as a **WHO collaborating Centre for Non communicable disease - Prevention and Control** as well as an **International Diabetes Federation (IDF) Centre of Education**, we took up the task creating awareness of diabetes and its prevention on a massive scale. To illustrate the importance of controlling diabetes and to spread awareness about the importance of a healthy lifestyle to control/prevent diabetes and its complications, a weeklong activity (11<sup>th</sup> to 16<sup>th</sup> of November 2013) was organized to commemorate World Diabetes Day.

Multiple programmes were organized at our main centre at Gopalapuram, and its branches at Anna Nagar and Tambaram in Chennai, Chunampet, Gudiyatham and Vellore in Tamil Nadu and at Hyderabad, Andhra Pradesh to raise awareness and to reduce the impact of diabetes and its associated complications. All the centres of DMDSC were **lit in blue colour** for a whole week to

symbolize '**Fight against diabetes**'. Diabetes screening camps, awareness walk, pinning of blue badge, exercise demonstration, quiz programmes on diabetes and its complications, live demonstration of healthy low calorie recipes and puppet show to educate the public about diabetes were conducted at our main centre and also in all our branches in Tamil Nadu and Andhra Pradesh to celebrate World Diabetes Day.

## GLIMPSES OF WORLD DIABETES DAY ACTIVITIES



Gopalapuram Main Centre lit in blue colour



Awareness lecture



Diabetes screening camp



Demonstration of exercise



Puppet show to educate the public on diabetes



Diabetes awareness walk





Receipe demonstration



Diabetes quiz

## MDRF Scientists Participate in Research Society for the Study of Diabetes in India (RSSDI) Annual Conference at Noida

The 41<sup>st</sup> Annual Conference of the RSSDI was held in Greater Noida, Delhi from 8<sup>th</sup> to 10<sup>th</sup> November 2013. RSSDI is the largest Indian organization of diabetes health care professionals and researchers. Eminent health care professionals involved in diabetes research and the delivery of diabetes care from India and abroad participated in this prestigious meeting. Our chairman **Dr. V. Mohan**, delivered the Presidential Oration on “**Reviving the stunned beta cell: A new paradigm in treatment**”, which was very well appreciated by all !

A team of 10 scientists including **Dr. V. Mohan, Dr. R. M. Anjana, Dr. Ranjit Unnikrishnan, Dr. M. Balasubramanyam, Dr. R. Guha Pradeepa, Dr. Ranjani Harish, Dr. A. Amutha, Dr. S. Kanthimathi, Mr. M. Balakumar and Mr. Regin** from the MDRF, Chennai participated in this meeting. A total of



Dr. V. Mohan delivering the Presidential oration

Seventeen oral and poster presentations based on MDRF research were made at this meeting. MDRF bagged **four 'First' prizes** and one **'Second' prize** for the oral and poster presentations made at the conference. All the presentations were very well received and appreciated by the scientists who attended the conference.



## MDRF'S RESEARCH WORK RECOGNIZED AT MELBOURNE WORLD DIABETES CONGRESS

The 22<sup>nd</sup> Congress of the International Diabetes Federation (IDF) was held at Melbourne, Australia from December 2-6, 2013. Over 12,000 delegates from 160 countries attended this Congress. A team of seven scientists from MDRF including Dr. V. Mohan, Dr. Ranjit Unnikrishnan, Dr. R. M. Anjana, Dr. R. Guha Pradeepa, Dr. Ranjani Harish, Mrs. Sudha Vasudevan and Dr. Gokulakrishnan participated in the Congress and a total of 14 abstracts were presented in the congress. **Dr. V. Mohan**, President, Madras Diabetes Research Foundation (MDRF), delivered a Lecture on “**A randomized controlled trial to assess the effects of substituting brown rice for white rice on diabetes risk factors in India**”, **Dr. Ranjit Unnikrishnan**, Vice Chairman, DMDSC, presented the lecture on “**Living with diabetes in a busy world**” and **Dr. R. M. Anjana**, Vice President, MDRF, gave a detailed picture on “**Prevalence and Incidence of diabetes across the Asia-Pacific region**”.



MDRF team at IDF congress





## 'Friends Forever' Support Group organize Recreational Trip for Juvenile Diabetic Individuals

**Ms. Vidyalatha Ashok**

Psychotherapist, Dr. Mohan's Diabetes Specialities Centre

'Friends forever' is a support group for juvenile diabetes which was started at Dr. Mohan's DSC in March 2002, whereby they meet on the 2<sup>nd</sup> Saturday of every month. It is a form of group therapy to help the children realize that they are not alone in handling day to day issues that arise due to the nature of the illness & how to cope with them. Generally group activities for different age groups are coordinated & promoted to develop skills. Emphasis is also laid on the need for children to get involved in sports, school activities & day trips, provided they make appropriate adjustments to different environmental circumstances. The children are taken every year for a trip (as is customary) & this year also they were taken to the planetarium on 9<sup>th</sup> November 2013 as a part of the



World Diabetes day celebration. The main aim of this unique action-mode service is to enable Diabetic children a sense of fearlessness going out especially for school excursions, tours etc and to build self confidence and create more positive attitudes towards life in them.

A team consisting of a doctor, nurse, diabetes educators, dietitians and a psychotherapist from Dr. Mohan's DSC, also accompanied the children and took in-charge for this jocund outing. The trip to Mahabalipuram was a wonderful experience. Dr. Kalpana Thai got into the MDRF bus with a zesty 'O Podu....' much to the surprise of her 'little patients', who are used to seeing their stern, but well-meaning doctor, quizzing them about blood sugars, calories and HbA1c's, usually. It was heartening to see the parents confidently letting go off their children into our custody for a whole day. Children below 6 years (3 of them) were accompanied by a parent, while the rest of the children, 23 in all, including Dr. Kalpana's children, (who wanted to join in the gaiety), were happy to be without parental 'monitoring'.

It was a bright and sunny day (thanks to the almighty !) when the entire 'Friends Forever' team set out purposefully for a joy ride to the "Tiger caves" in Mahabalipuram. Snacks and lunch were provided for them by DMDSC. The bus ride was a noisy affair with good-natured bantering, and everyone playing 'Antakshari,' to show off their prowess in singing. The venue, viz, Tiger Caves, contrary to its name, was a large, grassy area, where the children could play with gay abandon. Games ranging from country cricket (with a plastic bat and ball), Tug of war (girls vs boys), and Passing the Parcel, (with children being forced to exhibit their talents when they got the parcel), were played with gusto, and prizes distributed thereafter.

Of course, the best was saved for the last a surprise trip to the beach just 1-2 kms away. They were split into groups, with a team leader, for safety. The children let out a great whoop and descended into the sea, splashing water on each other, and running back, screeching, when the big waves supposedly chased them back to dry land. It was tough coaxing the children to get back into the bus, as they were having so much fun. It was tougher still for Dr. Kalpana to be vigilant, and keep checking in case of hypos, after the hectic activity.

All in all, what an unforgettable day for all the children, where they learnt it is possible to lead a normal life, just like other children, with the right precautions. One could not help recalling the famous song of yore, "There's a place I know, where we should go....there's a brook nearby, the grass goes high....Hooray! Hooray! It's a holi holiday What a world of fun, for everyone ...holi holiday.....". One wonders if they will want an encore.



## TESTIMONY OF A MARATHON RUNNER

Mr. Raghu Peethambaram, Hyderabad

M.No : 62792

I was diagnosed with type 1 diabetes in the year 2000 at an age of 25. It took me some time to accept the fact that this would be a condition I have to live with, mostly, for rest of my life. However, regular checkups and consultation at your hospitals gave me confidence that diabetes is very much manageable. I discuss this with my family, close relatives and few very close friends.

I also wanted to share my running experience with you. I have been a regular walker at Botanical Gardens, Hyderabad, for the past 6 years, covering 3 to 5 Km every day. Few of my friends who are into Marathon and long distance running suggested that I can try long distance running. They helped me in training for 3 months and gradually I increased my non-stop running distance from 3km, on the first week to 16 km on the week before the actual marathon event. I had running injuries, mainly the 'iliotibial band syndrome'. However, by God's grace and proper pre and post running stretching, I was able to manage that.

I am glad to let you know that I completed my first Half Marathon (21.1 Km) on 25-August-2013, organized by Airtel. The run was from Hussain Sagar, people Plaza to Gachibowli stadium. I registered for

the half marathon (21.1 Km) and trained for it for about 3 months. I completed the distance in 3 Hrs and 3 minutes. On the Marathon day, I took a glass of D-protein in hot water (avoided milk), a banana and few dried plums (prunes) since the run was at 6.00 am and I completed at 9.03 am. While running, I took sips of water every 3 Kms and few times took a sip of sports drink 'Gatorade'. After completing the race and stretching for few minutes, I immediately took my medicines and breakfast. I am not sure if this the right approach, but it worked for me. I carried few candies with me, just in case I needed them.

Recently I completed 3 more long distance runs. The first run I completed on 22nd September 2013, the Spirit of Wipro 10Km run in 1 hr and 11 mins, the second one on 24th November 2013, the Hyderabad 10Km run in 58 mins and 11 seconds and the third one on 1st December 2013, the Wipro Chennai Marathon 21.1 Km (Half Marathon) in 2 hrs, 21 mins and 10seconds.

My regular long distance walking helped me a lot in achieving this. I am indebted to everyone in **Dr. Mohan's Diabetes Specialities Centre**, in particular Dr. NG. Sastry whom I have been consulting in Hyderabad.



# HEARTY CONGRATULATIONS

to



**Dr. V. Mohan** receiving the award from **Mr. David C. Klonoff**, Editor-in-Chief, Journal of Diabetes Science and Technology at San Francisco, USA



***Our Beloved Chairman  
Padmashri. Dr. V. Mohan***



*For being awarded the prestigious Diabetes Technology Society Leadership Award at San Francisco, USA, on 1<sup>st</sup> November 2013. He was the First Asian to be conferred this award.*





## DIABETES IS RISING BUT IT IS PREVENTABLE

**Dr. V. Mohan**

Chairman & Chief Diabetologist,  
Dr. Mohan's Diabetes Specialities Centre, Chennai, India

Diabetes mellitus is characterized by elevated blood sugar levels that occur when the pancreas does not produce enough insulin, or when the body cannot effectively use the insulin it produces. Prediabetes is an intermediate state when the blood glucose levels are higher than normal but not high enough to be diagnosed as diabetes. In India, studies have shown that the prevalence of diabetes and prediabetes continue to rise and are now reaching epidemic proportions. The recent Indian Council of Medical Research-India DIABetes (ICMR-INDIAB) study reported that India now has 62.4 million people with diabetes and 77.2 million people with prediabetes. It is also predicted that the number of people with diabetes would increase to over 100 million by 2030.

Diabetes affects men and women equally. About 95% of women with diabetes have Type 2 diabetes or non-insulin dependent diabetes and the rest Type 1 or insulin dependent diabetes. In addition, gestational diabetes mellitus (GDM) defined as the first onset of diabetes occurring during pregnancy, has become one of the common health problems affecting pregnant women today. Recent research indicates that between 10-20% of all pregnant women in

urban areas of India have GDM.

Diabetes has now reached epidemic proportions due to both genetic and environmental factors such as unhealthy diet habits, physical inactivity and stress. Genes play an important role in the development of diabetes and Indians have been shown to have an increased genetic susceptibility to diabetes. However, while genetic factors are beyond our control, lifestyle modifications can help in managing and preventing diabetes. The adage 'Eat healthy, Walk More and Reduce Stress' are the mantras to prevent diabetes and we shall consider this in greater depth.

### **Promote Healthier Diets :**

Consuming a diet rich in vegetables especially greens and whole fruits, whole grains and pulses, cutting down on saturated fat, limiting one's salt intake to a single teaspoon (5gm) and limiting cholesterol intake to less than 300mg a day will help in the management of most non-communicable diseases. Individuals with diabetes need to eat a normal balanced diet with slight modification in the type and amount of food consumed. Eat plenty of fruits, vegetables and fibre rich foods. Avoid



highly polished rice. Eat instead brown rice or hand pounded rice. When one shops, cooks or eat out, make healthy choices. Always read labels and select foods that are low in fat, salt, sugars. Avoid processed, fried and energy dense foods which are high in calories, sugar and “trans” fats. Use fresh foods and foods that are boiled, steamed, grilled or baked.

### **Increase Physical Activity :**

One of the strongest drivers of the diabetes epidemic is a marked increase in sedentary lifestyle, especially in urban areas. Outdoor activities such as walking, cycling and jogging can help people stay fit and happy. Walking to work or school, to the market or place of worship or walking up the stairs may benefit. Take 10,000 steps each day and walk your way to health. One can benefit very much even by a brisk walk for 30 minutes every day for a minimum of five days a week. Regular exercise lowers cholesterol, increases insulin sensitivity and leads to a reduction in insulin requirements. Besides these exercises have important effects on mental health and individuals who exercise regularly report improved sense of well-being and self-esteem. Individuals with diabetes must always carry some sugar/glucose with them while exercising.

### **Stress Management:**

Inability to manage time properly leads to undue stress. Hence time and stress management have become an

integral component of lifestyle modification measures. It has been estimated that 75% of all medical complaints are stress related. Most stress management programs should aim to help people achieve maximum well-being and enjoy a richer and more rewarding tension-free lifestyle. Try to practice yoga/meditation/breathing exercises every day along with the exercise routine. In addition, time management and prioritization will go a long way in reducing stress

### **Medications:**

Medications i.e. oral hypoglycemic agents (OHAs) or insulin injections are used to reduce the blood sugar levels if diet and exercise fail to achieve adequate control. Over the past few years, several newer oral agents have become available for the treatment of Type 2 diabetes. There are a lot of newer medications to manage diabetes. This includes different types of tablets such as the dipeptidyl peptidase-IV (DPP-IV) inhibitors like Sitagliptin, Vildagliptin, Saxagliptin and Glucagon-Like Peptide-1 (GLP1) analogues like Liraglutide and Exenatide. This group of drugs may help to preserve the pancreatic beta cell function and drugs like Liraglutide and Exenatide also help in reducing weight and hence have become very popular.

In summary, the good news is that with life style modifications (see tips below) diabetes can not only be controlled but can be prevented in those at risk. The time for action is Now!





## TYPE 2 DIABETES MELLITUS GOING THROUGH PREGNANCY

**Dr. R. Guha Pradeepa**

Senior Scientist & Head, Research Operations, MDRF

It is estimated that diabetes complicates between 1 - 20% of all pregnancies worldwide leading to an increased risk of maternal and perinatal morbidity and mortality. Of all the diabetes seen during pregnancy about 10% are pregestational diabetes (i.e. diabetes which precedes the pregnancy), while the majority (90%) represents gestational diabetes-GDM (i.e. diabetes brought on by pregnancy).

### **Impact of Maternal Diabetes on Pregnancy:**

The metabolic disturbances of diabetes are responsible for disturbances in fetal growth as well as obstetric complications along with worsening of diabetic complications.

### **Effect on the fetus**

Diabetes in a pregnant woman can be detrimental to her fetus for four reasons. First, diabetic women have increased spontaneous abortion rates compared with the rates in non diabetic pregnant women. Secondly, prevalence of major congenital anomalies including neural tube defects and cardiac anomalies. The other two negative consequences that diabetes may have on the fetus are macrosomia (traditionally defined as birth weight in excess of 4000g or above the percentile for gestational age) and

neonatal morbidities. Macrosomia can make delivery more difficult and thus can lead to increased rates of cesarean.

### **Effect on the pregnant woman**

Hypoglycemia or low blood sugar may occur in the 1st trimester of the pregnancy, due to combination of physiological adaptation, attempt for strict control and nausea of early pregnancy. Traditionally both proliferative retinopathy [sight threatening diabetic eye disease] and nephropathy [kidney disease] were considered contraindications to pregnancy. Retinopathy often worsens, probably because of the rapid correction of hyperglycemia a situation also observed in non pregnant diabetic women. If the vision threatening proliferative retinopathy or macular edema is treated with laser before or during pregnancy, the eyes remain quiescent without further deterioration in women with diabetic kidney disease, increased proteinuria and a rise in blood pressure are common and this may require preterm delivery; irreversible deterioration in renal function occurs occasionally.

### **Management of Type 2 Diabetes Complicating Pregnancy:**

Management of diabetic pregnancies should begin before conception. The nine



months of pregnancy represents a period of considerable commitment for a diabetic woman. In pre-gestational diabetic pregnancies, the goal of therapy is to maintain normal maternal pre- and post prandial glucoses to avoid the immediate and long-term risks to the offspring.

### **I. Pre-pregnancy counseling**

Pre-pregnancy counseling to the diabetic women should include a frank discussion of how pregnancy will affect the complications of diabetes in both the near and long term. Till the best possible HbA1c levels are achieved along with good metabolic control, low dose oestrogen, combined with contraceptive pills along with barrier methods can be used as safe contraceptive method.

### **II. Pre-Pregnancy control and assessment**

The diabetic women needs to understand many issues regarding a future pregnancy, while the doctor needs to know much about the individual in order to give appropriate advice. The careful assessment of diabetic child bearing age women includes history of duration of diabetes, medications, insulin regimen status, dietary adherence, exercise, glycemic status, hypoglycemic episodes, chronic diabetic complications, thyroid assessment, obstetric history, psychosocial status are helpful in preparation of patient to face pregnancy.

### **III. Management Monitoring & Insulin Therapy**

All women with pre-gestational

diabetes should be seen early in the first trimester, to optimize glycemic control during the critical period of organogenesis. The standard care for monitoring glucose metabolism in pregnant women is self-monitoring of blood glucose (SMBG) levels atleast four times a day, at breakfast and one hour after each meal. Blood glucose objectives allow as limits: 70 to 100 mg/dl before meals, up to 140 mg/dl one hour and 120 mg/dl two hours after meals. Fructosamine assay and glycated haemoglobin (HbA1c) serve as indicators of glycemic control in pregnancies complicated by diabetes.

Insulin requirements usually change during pregnancy. The goal of insulin therapy is to prevent premeal and postprandial hyperglycemia and to avoid debilitating hypoglycemic reactions.

### **Nutrition therapy**

While managing hyperglycemia of pregnancy, one should aim to provide adequate nutrition to fetal and maternal health so as to promote appropriate weight gain with maintenance of normoglycemia and prevent ketoacidosis. Dietary prescriptions are individualized for pre-pregnancy body weight to height, activity level, and ethnic and personal preferences.

### **Other therapies (Oral agents & Exercise)**

Oral hypoglycemic agents are unlikely to achieve sufficiently good glycemic control hence, usually will be discontinued as soon as pregnancy is



confirmed and started on insulin regimen by the diabetologist. Moderate physical exercises have been shown to lower maternal glucose concentrations in women with diabetes. Pre-pregnancy exercise programme should include 30-45 minutes moderate exercise daily. Continuation of exercise during pregnancy and avoiding exercise in supine position in 1st trimester to prevent hypotension is necessary. Checking blood sugar level before exercise programme and avoiding exercise at the time of peak of insulin action is necessary to prevent hypoglycemia.

#### Post Partum Management:

The post partum period in women

with diabetes allows both the physician and mother to relax from the intensive medical and obstetric management as insulin resistance sharply comes down. The plan should be individualized to address glycemic management and surveillance, nutritional management, contraception prescription, future pregnancy planning, and lifestyle changes. All post partum patients should be encouraged to breast feed. Insulin dosages are usually lowered in intrapartum and in post partum period. Regular SMBG and additional adjustments in daily insulin needs is required.



## NUTRI FLOUR DOSAI

**Dr. Saroja Raghavan**

HOD & Sr. Manager, Nutrition & Dietetics,  
Dr. Mohan's Diabetes Specialities Centre, Chennai



Ingredients		Nutritive Value	
Rice flour - 100g	Ginger - a small piece	Energy	: 117Kcal
Wheat flour - 50g	Chopped coriander - few	Carbohydrate	: 15.5g
Ragi flour - 25g	Curry leaves - few	Protein	: 1.8g
Bajra flour - 25g	Cumin seeds - 1 tsp	Fat	: 5.3g
Onion - 50g	Asafoetida powder - ½ tsp	Portion Size	: 1
Green chillies - 3	Oil - 50ml	No. of Servings	: 10
Salt to taste			

#### Method

Mix rice, wheat, ragi and bajra flour with salt, cumin seeds, asafoetida powder and prepare a batter adding water. Grind ginger, green chillies, onion and mix with the batter. Add coriander leaves and curry leaves. Heat a non stick pan and spread a ladle full of batter into a circle with little oil around. Turnover and fry on both the sides. Serve hot with chutney.





## Frequently Asked Questions

**1. It is said that diabetes comes through genes & also by our life style? In which way it attacks more?**

A person's lifestyle and environment play a crucial role in the development of type 2 diabetes. We inherit more than just genes from our parents; we also inherit their lifestyle. Poor eating habits and lack of exercise are behaviors that children can pick up from their parents. So the parents should be good role models by adopting healthy lifestyle, which can help in preventing diabetes in the offspring's also.

**2. Sugar Free's like Aspartame used an alternative for sugar is said to be threat to kids, women and old age people. But now we get sugar free chocolates, ice creams, sweets etc., even in well known shops. Aren't they harmful?**

Sugar free products should not be used in children below 12 years and in pregnant women. Others can take them, but it is better to limit the amount consumed because many sugar free products contain calories. Many products are sweetened with fructose, instead of ordinary sugar. In those with uncontrolled diabetes sugar levels can increase if fructose containing foods are taken. Finally they also tend to be more expensive.

**3. It is said that boiled rice is more preferable compared to raw rice for the sugar patient?**

During ancient time, hand pounded rice was consumed and today due to the advancements in milling technology the hand pounding practice has vanished and is replaced by modern rice milling machinery which delivers higher yield of polished rice (either raw or parboiled). The process of polishing not only decreases the dietary fibre content but also the other health beneficial nutrients of rice. Such a polished rice choice can increase blood sugar levels. At our centre we have developed a special brown and white rice which does not increase the blood sugar levels like ordinary rice and hence are preferred for diabetic patients.

**4. Does juvenile diabetes affect only children?**

Despite its name, adults of almost any age are being diagnosed with Type 1 or juvenile diabetes. Juvenile diabetes strikes infants, children and adults suddenly, making them insulin dependent for life. Taking insulin does not cure any type of diabetes nor prevent the possibility.

Of its eventual and devastating effects: kidney failure, blindness, nerve damage, amputation, heart attack, and stroke.



**5. 'Eat Less; Work more' policy has been almost forgotten in the day-to-day life. What diet could be suggested for those who fix with less physical work to avoid getting sugar?**

Healthy eating is important in people with diabetes as it helps control blood glucose levels. A high complex carbohydrate

and low fat diet, which contains plenty of vegetables, would be an ideal diet for diabetic patient. If diabetes is under good control, patient can include a variety of foods including some fruits. Appropriate nutrition measures will help in reducing the risk of not only diabetes but also hypertension, dyslipidaemia, metabolic syndrome, and obesity.

## LIFESTYLE TIPS THAT HELP PREVENT AND CONTROL DIABETES

1. Make greens part of your daily diet. Include them in cooked vegetables as well as salads.
2. Consuming a whole fruit (50 kcals) is better than having a fruit juice (150 kcals). Fruits are rich in fiber and make a healthy snack.
3. Get into the habit of eating 'little' but 'often'. 5-6 'small' meals a day is better than three 'big' meals a day.
4. Maintain a small food diary. Keep track of all the food you eat in a day. You will be amazed at the amount and type of food you eat.
5. Watch what you eat and not the TV while you eat.
6. Exercise 150 minutes per week 30 mins/day 5 days a week.
7. Brisk Walking is the most economical exercise.
8. Take the steps instead of the elevator at every given chance.
9. Quit tobacco & moderate alcohol consumption.
10. Prioritize and organize your time and work.
11. Get 6-8 hours of peaceful sleep every night.
12. Eat less.... Walk more.

*Dear Readers, we invite your contributions to 'Diabetes Monitor' in the form of Diabetes related queries, anecdotes or personal experiences. Please send / email :*

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