

DIABETES MONITOR

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Diabetes App Launched!

Dr. Mohan's Diabetes Specialities Centre (DMDSC), the world's largest diabetes centre, in association with 'Jana Care', launched an advanced mobile-based application (App) that will coach patients on managing diabetes and enable them to monitor and share diabetes data with their doctors. This application will be extended to all the 20 centres of the DMDSC, from which 350,000 of its registered patients stand to benefit.

The application will coach patients through a structured



Launch of **Dr. Mohan's Diabetes Management App** by **Dr. V. Mohan**, Chairman, **Dr. R. M. Anjana**, Joint Managing Director, DMDSC and **Mr. Sidhant Jena**, CEO, Jana Care

16-week curriculum to help them cope with the behavioral and emotional aspects of managing Diabetes and learn new skills to make sustainable lifestyle changes. The curriculum comprises of interactive multimedia, quizzes and exclusive video content of Dr. V. Mohan. It will also allow patients to monitor vital information such as glucose and HbA1c levels, diet, physical activity steps, and weight, which are synced real-time with Dr. Mohan's electronic medical record (EMR) system. Insights gathered from this information will be utilized by Dr. Mohan's Care Team to provide more proactive and personalized care to patients.

The app will also give information on how much calories, every diet has. All the diet has been planned on our Indian cuisine for instance menu including dosa, idly are on the app. This app caters to all of India and not just the south. This app has been launched after several months of work and is comprehensive. In addition through this app patients will also be able to book appointments with doctors and clear their queries.

Hearty Congratulations

To

Our Vice Chairman **Dr. Ranjit Unnikrishnan**



Dr. Ranjit Unnikrishnan has been conferred Fellow of the Royal College of Physicians (FRCP) of London. Within a short period of time Dr. Ranjit has been awarded three FRCPs [Glasgow, Edinburgh and London]. We are extremely proud of his achievement!





SUGAR SUBSTITUTES

Dr. V. MOHAN

Chairman & Diabetologist

Dr. Mohan's Diabetes Specialities Centre, Chennai



For diabetic individuals, maintaining good control of blood glucose levels is critical to help them prevent the complications of diabetes and related diseases. Consumption of simple carbohydrates (sugars) like monosaccharides (glucose, fructose, galactose etc) and disaccharides (sucrose, lactose, Malatose, etc.) could rapidly increase blood sugar levels which is not desirable for diabetic individuals. The main culprit is sucrose or cane sugar which is nothing but our common table sugar which provides four calories per gram, and has almost no nutritional value and adds empty calories to the plate. Recognizing this fact, more and more people are turning away from table sugar and going for other sugar substitutes, otherwise called as sweeteners, which are food additives which duplicate the sweetness of sugar. Sugar substitutes provide fewer calories than sugar and help to control calories and weight and are especially useful in the management of diabetes mellitus and obesity. At the same time, sweeteners have been found to have a number of disadvantages, one being increased craving for sweet foods.

What are artificial sweeteners?

Some sugar substitutes are not natural

and these are referred to as 'Artificial Sweeteners'. There are two types of sweeteners, nutritive and non-nutritive. Nutritive sweeteners are represented by Fructose, Maltose, Honey, Lactose and polyols like Sorbitol, Xylitol, Mannitol, Erythritol, Lactitol etc. They provide the same or lower calories than sugar but do not increase blood sugar levels and have some nutritive values. Non nutritive artificial sweeteners include Saccharin, Aspartame, Sucralose, Acesulfame-K, Stevioside, Neotame, Alitame and Cyclamates. These provide negligible calories but have no nutritive value. Most sweeteners are of high intensity because they can provide the same sweetness as sugar even in very small quantities. The 'Food and Drug Administration' (FDA) in USA has approved Aspartame, Saccharin, Acesulfame K, Neotame and Sucralose but banned Cyclamates in 1970 in view of the suspicion of induced cancer in experimental animals. Some sugar substitutes, including saccharin and aspartame which have been around for decades. These are man-made chemicals and others such as Sucralose, are modified versions of table sugar. Sucralose, levulose, stevia and acesulfame-K have entered the Indian market and are starting to make some



waves, while still others like Xylitol, Sorbitol and Mannitol are yet to make the move in a big way.

Non nutritive artificial sweeteners

Saccharin is 200 to 700 times sweeter than sugar and has no calories. It is the oldest and the best researched and cheapest of all artificial sweeteners. Saccharin is unstable when heated but it does not react chemically with other food ingredients. Widely used in food, beverage and pharmaceutical industry, it has a bitter metallic aftertaste, which is minimized by blending with other sweeteners.

Aspartame is widely used all over the world and is slowly replacing Saccharin. It was approved as a general purpose sweetener in 1996. It is 200 times sweeter than sugar. It is unstable if subjected to prolonged heating. Animal studies have shown that aspartame does not have any carcinogenic potential, even in very high doses. Due to the phenylalanine component, children with phenylketonuria should avoid or restrict use of aspartame. Aspartame has been a subject of controversy regarding the long-term effects of its consumption. However a 2007 safety evaluation, found that aspartame is safe at current levels of consumption.

Sucralose, is the common name for a new high-intensity non nutritive sweetener derived from ordinary sugar. Approved in 1998 by USFDA, it is 600 times sweeter than sugar, twice as sweet as saccharin, and 3.3 times as sweet as aspartame. Sucralose tastes like sugar, retains its sweetness over

a wide range of temperatures and does not leave an unpleasant aftertaste. It adds no calories, as the body does not recognize it as a carbohydrate. It is heat stable and can be used in baking or in products that require a longer shelf life. As sucralose is not recognized as sugar or a carbohydrate by the body, it has no effect on glucose utilization, carbohydrate metabolism, the secretion of insulin, or glucose and fructose absorption in individuals with diabetes.

Neotame, is the newest non nutritive artificial sweeteners in the market and is 8000 sweeter than sucrose. Neotame was approved in 2002 as a general purpose sweetener after extensive scientific investigations. Neotame is moderately heat stable and extremely potent. It is rapidly metabolized and completely eliminated and does not accumulate in the body. Unlike aspartame, it is not metabolized to phenylalanine and hence is considered safe for all segments of population.

Acesulfame-K, 200 times sweeter than sugar, was approved by FDA in 1988. The body does not metabolize Acesulfame K, and thus it adds no calories. In addition, it does not influence the potassium intake despite its potassium content. It can withstand high temperature cooking but has a slight bitter aftertaste. It is usually blended with other sweeteners. No human health problems have been reported in the scientific literature in association with the consumption of Acesulfame-K.

— If one prefers to go natural, there's always Stevia, a plant extract-based non-



nutritive sweetener that is 300 times as sweet as sugar and non-caloric. It is derived from the Stevia Rebaudiana plant which contains the sweet glycosides known as stevioside and rebaudioside. Stevia, is championed by natural-foods advocates in the United States and is used in several countries, most notably Japan. It is very good as it has been shown to have some blood glucose lowering properties. However it does have a bitter aftertaste. Stevia has gained popularity as a natural way to sweeten food and drink.

Nutritive sweeteners

The most popular of these is Levulose (fructose or fruit sugar). Natural sources of fructose include fruits, vegetables (including sugar cane), and honey. Levulose is 1.7 times sweeter than sucrose, provides four calories per gram but has a much lower Glycemic Index (GI) - the immediate effect of a food item to affect blood sugar levels. This means that although it has the same number of calories as sugar, smaller quantities need to be used, and it raises blood sugar levels by just one-third the amount sugar does.

Sugar alcohol-based sweeteners like Sorbitol, Xylitol and Mannitol, which are not yet that popular in India, are carbohydrates that are not completely absorbed by the body. However, these sweeteners have been shown to cause gastro-intestinal problems and can produce diarrhoea if used in large quantities. Hence make sure you read the labels of sugar-free chewing gums and

diabetic chocolates before you gorge on them.

Are artificial sweeteners safe during pregnancy?

No studies to date have shown any adverse effect of artificial sweeteners on the fetus. Nevertheless, most care providers working with pregnant women do not recommend using artificial sweeteners during pregnancy. If pregnant women are using artificial sweeteners, it is always best to consult the care provider on which sweetener is to be used and how much is consumed. Until more conclusive studies have been conducted, it is better to avoid artificial sweeteners if you are pregnant.

Are artificial sweeteners safe for children?

No. They are not approved for children below 12 years of age and it is therefore better to avoid using them in children.

Characteristics of an ideal artificial sweetener

Artificial sweeteners should:

- ❖ Be sweet, closely resembling the sweetness of sugar
- ❖ Not raise the blood glucose levels
- ❖ Require only a small amount to create sweetness
- ❖ Be heat stable
- ❖ Not cause any side effects



- ❖ Be safe for consumption by all age groups, including children and the old

There is a lot of confusion and misconceptions regarding artificial sweeteners, with so many products in the market. Now-a-days artificial sweeteners are used in abundance in almost every “diet” drink, “lite” yogurts, puddings, and ice-creams, most “low-carb” products, and almost all “reduced-sugar” products. For a diabetic individual, non nutritive sweeteners can be used. Nutritive sweeteners like fructose based products

can be consumed only if the blood sugar is under good control. One should discuss choice of artificial sweeteners with one's physician or dietician, who can help them deciding which is best for particular food choices. The judicious use of artificial sweeteners can add an essence of sweetness to your life. However, if artificial sweeteners are used, ensure you read food labels and monitor blood sugar levels regularly. And remember that it's unlikely that one can control diabetes and lose weight by using sugar substitutes -- to do that, one simply needs to eat fewer calories and increase one's physical activity!!

Hearty Congratulations

To

Our Joint Managing Director Dr. R. M. Anjana



For being awarded the prestigious “RSSDI-Novartis Young Investigator Award 2015” in recognition of her outstanding research contribution in the field of Diabetes Complications. Recently she was also conferred FRCP (Glasgow).





**Start Learning and Practicing Yoga....
It has scientific health
benefits and economical too!**

Dr. M. Balasubramanyam
Dean of Research Studies & Senior Scientist, MDRF



As June 21 was declared as the International Day of Yoga by the United Nations General Assembly, we have just noticed the whole world geared up and celebrated the First International Day of Yoga. The day is very special for India as Yoga is a physical, mental and spiritual practice having its origin over 6000 years ago in India and it aims to integrate the body and the mind. Like the other days of international observance, cheering with Yoga should not be a one-day event! In fact, almost all the international observance days are meant for celebrations for their importance, awareness and human welfare throughout the year and after. Best example is World Diabetes Day. Every year, the day is represented by a theme which gets implemented by political, scientific and societal levels for the whole year for the better prevention and management of diabetes with utmost quality of life. Thus, Yoga should become a part and parcel of our day-to-day lifestyle whether one stand as a patient or a so-called healthy person!

Yoga ... Positive Influence by Politics & Science!

Occasionally politics can positively influence science! Promoting Yoga by

the Govt. of India is one such example. It is true that the political delegation and the call for the adoption of 21 June as International Day of Yoga by our Prime Minister Narendra Modi during his address to UN General Assembly on September 27, 2014 has later resulted in the declaration of the Day. What about the Science of Yoga? In the era of evidence-based medicine, Yoga is gaining attention as it has scientifically proven health benefits across several diseases and illnesses.

Yoga is a stress buster and metabolic regulator!

Recent studies show that yoga brings about a balance in autonomous nervous system and regulates metabolic parameters (blood pressure, glucose, lipids) by stabilizing sympathetic and parasympathetic nervous system. It mainly acts via down regulating the hypothalamo-pituitary adrenal (HPA) axis that trigger as a response to physical or psychological stressors, leading to a cascade of physiological, behavioral, and psychological effects. By reducing perceived stress, anxiety and physiological arousal, yoga appears to modulate stress response systems. Studies conducted at the Madras



Diabetes Research Foundation have already proved that several endogenous stressors (oxidation, inflammation, glycation, endoplasmic reticulum [ER] stress, autophagy, proteosomal stress) could cause diabetes and its complications. In addition, psychosocial stress and depression are also closely associated with diabetes. It is at this context, yoga for diabetes prevention and control assumes importance as it can counteract both cellular stress and psychosocial stress.

Noble Laureate Endorsement on the Biology of Yoga Benefits!

While hundreds of studies have been conducted on the mental health benefits of yoga and meditation, they have tended to rely on blunt tools like participant questionnaires, as well as primary outcome measurements such as heart rate, blood glucose and blood pressure monitoring. Only recently advanced technologies allowed scientists to measure physiological changes due to Yoga in greater detail. Yoga has a true biological effect. The kinds of things that happen when you meditate do have effects throughout the body, not just in the brain. Emerging literature endorses that yoga practices decrease endogenous oxidative and inflammatory signaling. A recent transcriptome (gene expression) study on relaxation response practices (that includes meditation and yoga) revealed that these practices enhanced expression of genes associated with energy metabolism, mitochondrial function, insulin secretion and telomere maintenance, and reduced expression of

genes linked to inflammatory response and stress-related pathways. Yoga is an increasingly popular form of exercise in the US and it seems more than 20 million Americans use yoga as their form of exercise. We always have the tendency to accept the facts when foreign endorsements are made. This is also true for Yoga. “Yoga can lead to improved mental and cognitive functioning and lower levels of depressive symptoms accompanied by an increase in telomerase activity (and maintenance of telomere length) suggesting improvement in stress-induced cellular aging” - this is what endorsed in a study by none other than the Noble Laureate, Dr. Elizabeth Blackburn from California. In separate studies conducted at the Madras Diabetes Research Foundation it has been also shown that more depression and accelerated telomere shortening has been seen in patients with type 2 diabetes.

Multilevel integrated research is needed on Yoga

‘Is mind-body relaxation by yoga effective to combat lifestyle stress’ is a virgin territory of research with a new dimension of scientific approach. Recent studies conducted in India and elsewhere have reported significant improvement in measures of risk factors for diabetes and cardiovascular diseases following the completion of yoga-based programs. However, it is also cautioned that many of these studies are small, lack appropriate comparison groups, and/or have other design or methodological limitations



that preclude definitive conclusions regarding efficacy. This clearly means that, additional high quality trials on Yoga and multilevel integrated research are needed.

Yoga is beneficial and economical!

It is no doubt that non-communicable diseases (cardiovascular disease, diabetes, cancers, neurodegenerative disorders and other chronic respiratory diseases), which are otherwise called as 'lifestyle disorders' are the big health burden worldwide and especially in developing countries like India. Someone has asked this: "What

prevents you to prevent non-communicable diseases?" This means lifestyle diseases are preventable, but what we need are cost-effective strategies & technologies that suit to the low-resource settings. This is where Yoga comes as a rescue, remedy, preventive and therapeutic tool. 'Yoga is both beneficial and economical for preventing and controlling lifestyle disorders'. While Politics promotes it... Science supports it... Commercial costs are nil... Public and Patients' benefits are Plenty.... What do you look for? Let's start learning and practicing Yoga.

Hearty Congratulations

To

Ms. Jayasree Venkatraman



Ms. Jayasree Venkatraman, laboratory technician, Dr. Mohan's Diabetes Specialities Centre, has won 3rd prize in the CME & Workshop in Laboratory Medicine held at MIOT Hospitals on 26.04.2015. The topic of her presentation was 'Potassium and Platelets - Any relation?'





Basic truths about Breakfast

Dr. A. Amutha

Research Associate & Registered Dietitian, MDRF



“I have no appetite in the morning!”
“Want to reduce my weight... so I am skipping breakfast” “I’m too busy!” – We see people insist like this and rush off to deal with the world on an empty stomach. We hear all of the excuses a million times. Read on and find the **why, when, and what**, on this delicious and nutritious daily ritual.

As we all know, breakfast is a meal preceding lunch or dinner and usually eaten in the morning. Today however, hampered by busy morning schedules, some people neglect breakfast or skip it entirely. Eating breakfast might have beneficial effects on appetite, insulin resistance and energy metabolism.

Skipping breakfast doesn’t make anyone thinner. There is no evidence that skipping meals will help in losing weight. In fact, most people who skip breakfast tend to load up on later in the day, which is rather unhealthy. Even while being in diet, remember to take breakfast. Researchers say that eating a good breakfast can protect against weight gain, diabetes, and heart diseases. Studies have shown that those who eat breakfast regularly are less likely to be overweight than those who regularly skipped it. They also indicate a direct link between breakfast consumption and weight management. Those who successfully lost excess body weight and then maintained a healthy weight regularly ate breakfast. Seeing that breakfast-skippers were more likely to have insulin resistance, it illustrates that skipping breakfast could be a risk factor

for diabetes and cardiovascular diseases.

Breakfast makes people perform better. Having a healthy breakfast makes children more alert in their studies and enables them to perform other activities well. According to the American Dietetic Association, children who eat breakfast are more likely to have better concentration, problem solving skills and eye handling coordination. They may also be more alert, creative and less likely to miss days of school. Children who eat breakfast were found to be more productive during morning and even had faster reaction times. Hence parents should remember to give their children healthy breakfast in the morning before sending them to school.

Some ways to have a healthy breakfast:

- ◆ Cereals and fruits are ideal for breakfast, and for overall health.
- ◆ Build a breakfast around foods that take little preparation time.
- ◆ Perk up cereal pulse mix. Make a variety of dishes with Idli or Dosa batter if feeling bored with the same recipe.
- ◆ Try to choose foods from at least two or more food groups. Protein foods take longer to digest and will provide sustained energy and keep one feeling full longer.
- ◆ Enrich the breakfast by incorporating colourful vegetables.

“**No time**” is **no excuse**; Time is at a premium for most of us, however, it pays to make time for what may be the most important meal of the day.





explore the nutrients



MAGNESIUM RICH FOODS

- Cereals** : Bajra, Jowar, Whole wheat, Buck wheat, Wheat germ, wheat grain bread.
- Pulses** : Bengal gram whole, Black gram whole, Cow pea, Soyabean white
- Leafy vegetables** : Paruppu keerai, Spinach, Amaranth
- Other Vegetables** : Onion stalks, Plantain flower, Cluster beans, Bitter gourd, Ladies finger, Ridge gourd
- Nuts & oil seeds** : Almond, Walnut, Peanut
- Condiments & spices** : Green chillies, Cumin seeds, Ginger fresh, Poppy seeds, Turmeric
- Fruits** : Cape gooseberry, Jambu fruit, Muskmelon, Avocado

CALCIUM RICH FOODS

- Cereals** : Ragi, Whole wheat flour
- Pulses** : Bengal gram whole, Black gram, Horse gram, Rajmah, Soyabean
- Leafy vegetables** : Agathi, Amaranth, Curryleaves, Drumstick leaves
- Other Vegetables** : Cluster beans, Chowchow, Beans, Kovai, Sundakai
- Condiments & Spices** : Asafoetida, Dry cloves, Cumin seeds, Pepper, Gingelly seeds, Mustard seeds
- Fruits** : Amla, Guava, Lemon, Goose berry, Sweetlime, Orange, Tomato, Ber fruit
- Milk products** : Skimmed milk, Cheese, Skimmed curd.

IRON RICH FOODS

- Cereals** : Whole wheat, Rice flakes
- Pulses** : Bengal gram roasted, Soya bean, Dry peas, Green gram whole, Horse gram

Leafy vegetables : Amaranth, Mint leaves, Carrot leaves, Celery, Manathakali leaves, Turnip greens, Raddish leaves

Other Vegetables : Onion stalks, Cow pea pods, Dry sundakai, Double beans, Bittergourd, Green plantain, Tomato green, Plantain flower, Snake gourd

Condiments & spices : Asafoetida, Cumin seeds, Black pepper, Fenugreek seeds, Turmeric

Fruits : Peaches, Goose berry, Guava hill, Watermelon

Nuts & Oil seeds : Almond, Gingellyseeds, Mustard seeds.

Milk products : Skimmed milk powder.

ANTIOXIDANT RICH FOODS

Vitamin C : Amla, Cape goose berry, Lemon, Sweet lime, Straw berries, Green pepper, Broccoli, Agathi, Amaranth [red and green], Drumstick leaves, Coriander leaves, Turnip greens, Raw cabbage [dark green cabbage].

Vitamin E : Wheat germ, Almond, Peanut butter, Whole grains [wheat], Sunflower oil and Olive oil

-CAROTENE : Agathi, Amaranthus, Corriander leaves, Curry leaves, Drumstick leaves, Fenugreek leaves, Gogu, Lettuce, Mint, Spinach, Carrot, Broccoli, Giant chillies, Pumpkin, Red cherries, Guava country, Jambu fruit, Orange Papaya, Tomato, Watermelon.

Selenium : Whole Grains, Garlic. (Cryptoxanthins) Red capsicum, Pumpkins



FITNESS & EXERCISE PUZZLE

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Across:

- 2. A type of lifestyle without physical exercise
- 3. Repetitive physical activity performed in order to improve or maintain physical fitness or health.
- 4. In strengthening activities, the number of times a weight is lifted.
- 5. It is a complex disorder involving an excess amount of body fat.
- 6. The ability to maintain body equilibrium while standing still or moving
- 7. The amount of effort required for an activity or exercise.
- 8. The ability of a muscle or muscle group to exert force.
- 10. Isometric exercise or static action resistance training is a strength training activity in which the muscle length & joint angles do not change.

12. The power & ability to be physically & mentally active.

13. It helps body to exercise efficiently and it lubricates the entire body

Down:

- 1. Involving repetitive use of the large muscles, temporarily increasing heart rate & respiration.
- 9. A standardized estimate of an individual's relative body fat calculated from his or her height & weight.

Down to Up:

- 11. The abbreviation for metabolic equivalent which is a unit of energy expenditure.
- 14. How long it takes for an activity or exercise to be performed.

Key: 2. Sedentary, 3. Exercise, 4. Repetition, 5. Obesity, 6. Balance, 7. Intensity, 8. Strength, 9. BMI, 10. Isometric, 11. MET, 12. Energy, 13. Water

Down to Up: 11. MET, 14. Duration

Down: 1. Aerobic, 9. BMI





Frequently asked questions

1. As diabetes and obesity are always inherited is dieting and exercising a waste of time?

There does seem to be a genetic element to both Type 2 diabetes and obesity, which is why they can sometimes run in families. However, environmental factors, including diet and exercise, play an enormous part in the development of both these conditions. It is important for everyone to eat healthy and exercise regularly to reduce the risk of developing both these conditions.

2. Is it necessary to use medicines for diabetes life long?

Most of the times the answer to this question is "Yes". Anyone who has Type 1 diabetes needs lifelong insulin therapy. There may be a "honeymoon" phase after the diagnosis, during which blood sugar is controlled with less or no insulin. However, this phase doesn't last. But in some conditions, in Type 2 diabetes, there could be a possibility of reversible diabetes caused by severe stress or if it is drug induced eg. by steroids. In such a condition the patient may become normal after eliminating the precipitating factor.

3. Can we cure diabetes by avoiding intake of carbohydrate foods?

Unfortunately, currently diabetes cannot be cured, but can be treated. Consuming carbohydrate foods will not cause diabetes, so eliminating them will not cure diabetes. However, by decreasing the carbohydrate intake individuals with

diabetes can lower their blood glucose levels. Carbohydrate foods are essential for providing the body with energy. The Indian diabetic diet should be planned to supply 60% of their calories from carbohydrate. The moderate-carb approach stresses that grains should come in the form of whole grains instead of refined grains (like white flour), which have been stripped of important vitamins and minerals. Carbohydrates that are found in foods such as bread (refined flour), sweets, confectioneries etc., can increase a person's blood sugar level. Research has shown that eating a moderate-carb, high-fiber diet (like one that includes whole grains) may improve post-meal glucose levels and lower the risk for cardiovascular disease. Thus a healthy, well-balanced diet is the best choice for everyone.

4. Can you suggest some ways to overcome lipid abnormalities?

- Adjust caloric intake to achieve or maintain ideal body weight.
- Consume low fat, high complex carbohydrate
- Follow dietary principles to lower cholesterol intake.
- Total intake of fat should be <25% of total caloric intake.
- Substitute whole milk and its products with skimmed milk.
- Replace organ meat and red meat with fish and chicken without skin.



- Avoid use of egg yolk.
- Replace use of butter, ghee or dalda with refined oils.
- Opt for coarse cereal grain, husked pulses, fruits and vegetables instead of refined foods.
- Avoid rich salad dressing like salad oils and mayonnaise.
- Include plenty of onion and garlic in the diet
- Intake of adequate amounts of natural antioxidants (vitamin C, beta-carotene and vitamin E).
- Include natural sources of n-3 fatty acids.
- Avoid use of alcohol.

5. How can diabetes affect one's mood?

People with diabetes are twice as likely

to become depressed. Depression can be short-term (situational) or long-term (clinical). The psychological stress of having diabetes may contribute to depression. In addition, people with depression may be more likely to develop diabetes. A depressed diabetic individual may not have the energy or motivation to maintain good diabetic management. It is frequently associated with unhealthy appetite changes. Recent studies have suggested that effective treatment of depression can improve diabetic control. Diabetes requires physical and mental accommodations. The individual must learn about a complex system of dietary and medical interventions. Lifestyle, work, and school schedules may have to be altered. This can consume a lot of energy for both the individual and his or her family. Just as important, are the psychological adjustments.

HEALTHY RECIPE - PALAK TOFU

Ingredients			
Tofu	- 50g	Oil	- 1 tsp
Palak	- 2 bunch	Garam Masala powder	- ¼ tsp
Tomato	- 1	Coriander powder	- ¼ tsp
Onion	- 1	Cumin seed powder	- ¼ tsp
Green Chillies	- 2	Salt	- to taste



Method

Cut the tofu into small cubes. Chop the palak. Grind tomato, onion and green chillies in a mixie. Boil the chopped palak and blend in a mixie for a minute. Heat oil. Add the ground masala, coriander, cumin seed and garam masala powder. Stir and add palak and salt. Add tofu cubes and cook for a minute. Garnish with onion and lime. Serve with phulkas.

Nutritive Value

Energy	- 220 Kcal
Carbohydrate	- 18 g
Protein	- 13 g
Fat	- 11 g
Fibre	- 3 g
No. of servings	- 2





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(Eligibility: 12th pass **Duration: 2 years**)

> Certificate Courses

- Physician's Assistants
- Diabetes Technologies
- Medical Laboratory Assistant
(Eligibility: 10th pass **Duration: 1 year**)

* Affiliated to The Tamilnadu Dr. MGR Medical University

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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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