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Journal of Diabetes Education To Dispel Darkness Of Diabetes

DIET MANAGEMENT >





EXERCISE

MEDICATION >





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To Dispel Darkness of Diabetes

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EDITOR-IN-CHIEF Hemraj Chandalia GUEST EDITOR Benny Negalur	CONT	ENTS
EDITORIAL COMMITTEE Salome Benjamin Shaival Chandalia Niti Desai	1. Family as Support to a Di Benny Negalur	iabetes Patient 02
Kavita Gupta Sonal Modi Benny Negalur Shobha Udipi	 Metabolic Syndrome - A f risk factors Seetha Raju 	Camily of Cardiovascular 05
EDITORIAL ASSISTANT Megha Kothari Jayshri Jain ASSOCIATION OF	3. Monogenic Diabetes – A F Vijay Negalur	Family gene defect 08
DIABETES EDUCATORS PRESIDENT Hemraj Chandalia, Mumbai	4. Role of Exercise and Fam Sheryl Salis	ily in Diabetes 11
VICE PRESIDENT Shobha Udipi, Mumbai Salome Benjamin, Mumbai SECRETARIES Niti Desai, Mumbai Kavita Gupta Nagpur	 5. An Educator's experience Doctor - Patient - Educate Zankhana Shetty 	e of a Winning Quartet - 16 or - Family
TREASURER Benny Negalur, Mumbai	6. Questions and Answers	
EXECUTIVE MEMBERS Shaival Chandalia, Mumbai Shubhda Bhanot, Delhi	7. Recipes	
Megha Gupta, Delhi Meenakshi Bajaj, Chennai Priyangee Lahiry, Kolkata	8. How knowledgeable are y	ou? 22

FAMILY AS SUPPORT TO A DIABETES PATIENT

* Benny Negalur

Every year the International Diabetes Federation releases a theme to raise awareness of a particular aspect of Diabetes. This year the role of the family in management, care, prevention and education of diabetes is emphasized to raise awareness of the impact that diabetes has on the family and support network of those affected.

Diabetes affects 415 million people worldwide, most of whom are diagnosed with type-2 diabetes. It is a family health problem which is bothering in the developed as well as developing countries. Aetiology of diabetes involves various genetic and environmental components, including socio-economic risk factors. Type-2 diabetes is associated with micro vascular complications (retinopathy, nephropathy, and Neuropathy) as well as macro vascular complications (stroke, myocardial infarction, and peripheral artery disease), and premature death. Real burden of diabetes is caused by such complications leading to increased morbidity and mortality.

Self-care is necessary for coping with chronic disorders like diabetes in order to improve health outcomes and reduce the mortality. Selfcare in diabetes includes regular appropriate physical activity, appropriate dietary practices, self-monitoring of blood glucose, compliance with treatment regimen etc. Despite advances in treatment, many patients fail to achieve adequate glycemic control. Self-management challenges are among the important reasons behind this inadequate control. Many diabetic patients also experience psychological issues affecting their ability to cope and manage their disease. Healthcare consultations are sporadic and there could be lack of dieticians or educators.

Family as a Healthcare provider

Much of the patient's diabetes management takes place in family and social environment. The family is an institution of all learning, support, responsibilities, caring and guidance regarding everyday living. All these dependables help a lot, much more when any member of the family has diabetes.

In large cities in India, every home will have a person with Diabetes and the number is rising even in rural India due to changing lifestyle. So awareness of the signs, symptoms and risk factors should be given to all. This can be done by holding camps with talks/ lectures by health care professionals about detection and management of Diabetes. Media can help in a big way, as the entire family can view health channels on TV, or in print in newspapers and magazines. There are also various e-education apps, Facebook and Whats App in which education can be imparted to the entire family.

Diabetes can be expensive for an individual with costs of insulin injections, oral hypoglycemia agents and monitoring rising by the day. It can bite on a sizeable part of the individual's income. Health aware family members can pool in income to help live better lives in optimum diabetic control.

Diet and exercise has to be inculcated by all family members. Cooking at home with added help can dictate proper nutrition, portion size of food items and adequate calories. It should be a matter of habit to carry snack / lunch boxes from home to all members of the family for prevention and treatment of diabetes. Physical activity can be increased by daily family errands, marketing

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help, visit to religious units and structured exercise, if permitted for the whole family.

Diabetes is a lifelong disease, any changes to be made have to be ongoing for life. This can be a burden for the individual with diabetes and affect the person psychologically into anxiety and depression. Fear that he or she cannot fully take part in various festivity food items can drive the person to loneliness. Support of family members in making life comfortable and helping in living a natural life can change his / her life to happiness.

Family members can provide support in different forms, such as instrumental support in driving patients to appointments or helping inject insulin, and moral support to cope with diabetes. Family support has a major impact on a patient's ability to self-manage their chronic condition.

Family education along with patient education may provide support to the patient, help develop healthy family behaviours, and promote diabetes self-management. Family may need to redistribute the responsibilities, modify daily routines and negotiate roles due to diabetes. Family support also buffers the effect of stress on Glycemic control.

Diabetic patients show some aggressive symptoms that can be noticed and tolerated only by the family members. Irritability is a common problem, predominantly when the blood glucose rises, posing a threat to the family harmony. However, Asian families have a reputation of being tolerant and responsible to the members regardless of how tough the hardship is.

Fighting depression

Diabetic patients have sometimes been found to suffer from major depressive illness, which affects the adherence to the treatment regimen. Family, through encouragement and maintaining the patient's self-esteem, can greatly help coping with depressive illness and can thereby help adherence to the treatment regimen and diabetes self-care.

Supporting the family and improving the family member outcomes

Family members can feel distressed due to their loved ones' diabetes because of limited knowledge about diabetes or not knowing how to support their loved ones. Knowledge about the disease, strategies to alter the family routines, and strategies to cope with emotional aspects of the disease are some of the strategies that family members need for self-management of diabetes. Family education can help the family members understand why the lifestyle changes are needed, what the best ways to implement them are, and where to find additional information such as health recipes or exercise routines. Family members can also benefit directly by reducing their own psychological distress regarding their loved ones' diabetes and by improving their own health behaviour. Improved lifestyle and weight loss can reduce the diabetes risk for the family members at a high risk of diabetes.

Including the family in diabetes intervention



https://www.parentmap.com/article/get-active https://www.alamy.com/indian-joint-familydining-table-family-indoor-sports-with-kids -eating-food-lunch-at-home-image158301118. html

Family support in diabetes care has been shown to have a substantial effect in improving health outcomes for people with diabetes. It is therefore important that ongoing diabetes self-management education and support be accessible to all people with diabetes and their families to reduce the emotional impact of the disease that can change negativity to a positive attitude and improve quality of life.

The negative ways family can affect diabetes

Although patients' family and friends can provide effective support in diabetes, they also have the potential to impede the care. Family structure and beliefs, and its problem-solving skills or their lack can exacerbate the stress associated with diabetes management. The lifestyle changes that are recommended for diabetes management often conflict with established routine in the family. Changes in routine may include change in the type of food prepared and consumed in the home, time away from work for the family member for attending clinic visits with the patient, reprioritization of family finances etc. Thus, diabetes can put family cohesion to a test. If family members lack the motivation or willingness to bear the lifestyle changes necessary for patient's care, their behaviour is non-supportive, and thus, can negatively impact patient's self-care and Glycemic control. Nonsupportive behaviour from family members have been reported to be associated with being less adherent to one's diabetes medications, and thus, with poor glycemic control. Family members may sabotage patient's self-care by planning unhealthy meals, tempting the patient to eat unhealthy food, or questioning the need of medications. Family members may also nag or argue with patients in an attempt to support adherence. Such behaviour is found to be associated with greater diabetes-related distress in the patients. Family education along with patient education can better equip the family members to support the self-care efforts by the patients.

It is ultimately down to the patient

Evidence has shown that a diabetes patient's family can be of great help when it comes to helping maintain a healthy lifestyle, adhering to the medication and thereby achieving glycemic control. However, it is the patient who has to follow lifestyle and medications; and patient's family, however willing and efficient to assist, can help only little if the patient is unwilling to follow lifestyle changes and medications. It is ultimately an adherent patient who can achieve Glycemic goals with the help of an eager-to-help, knowledgeable and efficient family.

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METABOLIC SYNDROME - A FAMILY OF CARDIOVASCULAR RISK FACTORS

* Seetha Raju

The metabolic syndrome (MetS) has received increased attention in the past few years. It is a major public health challenge globally due to rapid urbanization, sedentary lifestyle, and surplus energy intake. Worldwide prevalence of MetS ranges from <10% to as much as 84%, depending on the region, urban/rural environment, composition (sex, age, race, and ethnicity). In India, it has been documented to be 11% to 41%. Studies have also shown that MetS is not only prevalent in elderly but also in children/adults (8-18 years). Considering all these evidences, prevention of risk factors of MetS is essential for all members of the family.

Metabolic Syndrome consists of multiple, interrelated risk factors of metabolic origin that appear to directly promote the development of atherosclerotic cardiovascular disease (ASCVD). According to the NCEP ATP definition, Metabolic syndrome is present if three or more of the following five criteria are met.

- 1. Waist circumference > 100 cms in men > 90 cms in women.
- 2. BP > 130/85
- 3. Fasting triglyceride (TG) level >150 mg/dl
- 4. Fasting HDL cholesterol < 50 for women and < 40 for men
- 5. Fasting Glucose > 100

There are other factors that can increase risk for metabolic syndrome.

Include

- 1. Age
- 2. Family history of metabolic syndrome
- 3. Sedentary Lifestyle
- 4. Women who have been diagnosed with PCOS

This constellation of metabolic risk factors is strongly associated with type 2 diabetes Mellitus or the risk for this condition. With reference

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to International Diabetes Federation (IDF), abdominal obesity measured as increased waist hip ratio incorporates both concepts of obesity and insulin resistance as being the second major underlying risk factors of the metabolic syndrome. Thus, they made increased waist circumference a required element for diagnosing the metabolic syndrome. Abdominal obesity is a major independent risk factor of insulin sensitivity, impaired glucose tolerance, elevated blood pressure and dyslipidemia seen in the MetS.



Apple Shape	Pear Shape
1. More visceral fat	1. Less visceral fat
2. Higher risk of	2. Lower risk of
weight- related	weight- related
health problems	health problems

Complications - Atherosclerosis

Diabetes Mellitus

Occlusive coronary disease

Stroke - cerebrovascular disease

NAFLD - Nonalcoholic fatty liver disease

PVD - Peripheral vascular disease

CVD - Cardiovascular disease including heart failure

Overweight and obesity are associated with an increased risk for CVD, hypertension, type 2 Diabetes Mellitus, certain cancers and many other disorders. It has been assumed that adipose tissue releases an excess of fatty acids and cytokines that induce insulin resistance. The release of these excessive free fatty acid (FFA) also induces lipotoxicity, as lipids and their metabolites create oxidative stress to the endoplasmic reticulum and mitochondria. Consequently, the secretion of FFA by endothelial lipoprotein lipase (LPL) from elevated blood triglycerides within increased β -lipoproteins will lead to lipotoxicity which results in insulin-receptor dysfunction.

Treatment includes lifestyle changes including 7 to 10 % wt loss, 30 min of moderate to intense exercise + low calorie intake. Then again treatment of the risk factors are vital. Anti hypertensives and statins and anti-diabetic treatment mainly for Insulin Resistance if sugars are high form the mainstay of therapy.

The adoption of a healthy lifestyle is the cornerstone of MetS treatment. Diet, physical activity, sleep, emotion control, peer support, and avoidance of tobacco, alcohol, and other drugs/ medications that alter satiety or body weight are key targets of any healthy lifestyle program. Each one requires a systematic assessment and a patient-centered intervention plan. Knowledge, beliefs, fears, barriers to achieve adherence to therapy, and motivation to change should be evaluated for each target A prime objective is weight loss. Even a small weight loss (5% or more) results in an improvement in several MetS components. The most likely explanation for that is the high turnover rate of the intra-

abdominal fat depots; as a result, a slight weight loss reduces the liver exposure to fatty acids and other proinflammatory mediators. A sustained weight loss greater than 10% could be enough to reverse glucose intolerance, arterial hypertension, and several of the lipoprotein abnormalities. For management of long-term as well as short-term risk, lifestyle therapies are first-line interventions to reduce the metabolic risk factors. The major lifestyle interventions include weight loss in overweight or obese subjects, increased physical activity, and modification in diet.

A family based approach for maintenance of weight

Efforts to achieve and maintain weight loss are more successful with family involvement. Family dynamics including family rules, emotional support, encouragement, reinforcement from other family members, and family member participation are important determinants of the family's health-behavior patterns. Family influences also are present in the development and control of weight problems in children and adults. The family is an ideal mutually reinforcing environment in which healthy behaviors can be introduced, accepted, and maintained. Epstein et al reported findings from a series of weight loss interventions targeting adults and their children with different conditions of reinforcement of parents and the children, for the children only, or for general family participation. Results revealed that reinforcing weight loss for both the parent and the child produced the greatest weight loss over a 5-year period. The authors concluded that the relationship between parent and child weight loss can serve as a reciprocal reinforcer for changes in diet and other weight loss-related behaviors. Family-based behavioral obesity treatment programs are among the most effective for combating pediatric obesity. Wrotniak et al reported that concurrent treatment of children with their obese parents tends to result in positive change for both, though the effects tend to be greater and longer lasting for children. This may be the result of more changes to the eating and activity environment in the home or to more healthy diet and exercise role modeling of the parents.

Lifestyle Changes to Prevent the Development of Risk Factors for Metabolic Syndrome

1) Diet:

These dietary recommendations can improve some dyslipidemias and can help achieve and maintain an optimal blood pressure in adults

- Opt for fresh or frozen vegetables over alternative packaging, eat vegetables specifically those that are green and leafy
- Choose whole grain cereal, bread, and rice
- Reduce dairy fat intake
- Select lean proteins, such as fish, boneless, skinless chicken or turkey, reduced-fat ground beef, eggs, legumes, and nuts
- Use monounsaturated and polyunsaturated oils for cooking
- Opt for unsweetened or whole fruits and no added-sugar alternatives instead of food without added-sugar, such as colas, fruit juice, cakes, cookies, pies, candy and other snacks and sweets.
- Personalize your caloric intake, adapted for cultural preferences and/or health conditions, as appropriate
- Limit alcohol consumption
- Reduce dietary sodium consumption to 2,400 mg/d or less. Note that reducing sodium consumption by 1,000 mg/d has been proven to improve blood pressure readings.
- Observe the nutritional facts panel when shopping and make selections based on those items with lower sodium content or no-salt added
- At-home meal preparation is optimal for control and awareness of ingredient

2) Physical activity:

Reduce periods of inactivity throughout the day. "Sitting is the next smoking"

So sitting for more than an hour at a time should be followed by 2 or 3 min of standing or walking.

- Engage in aerobic activity, which should be carried out in no less than ten-minute sessions with multiple sessions carried out every day/week.
- Moderate intensity: Should consist of no less than 150 minutes of activity/week.
 May be increased to 300 minutes of activity (or more)/week as tolerated
- Vigorous intensity: Should consist of no less than 75 minutes of activity/ week. May be increased to 150 minutes of activity (or more)/week as tolerated. Incorporate strength training as tolerated for added health benefits. Increasing physical activity beyond recommendations is appropriate (as tolerated) and can lead to achievement of added health benefits.

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MONOGENIC DIABETES – A FAMILY GENE DEFECT

* Vijay Negalur

Monogenic Diabetes Mellitus

Monogenic diabetes represents a broad spectrum of diseases, ranging from neonatal diabetes Mellitus (also called as 'Monogenic diabetes of infancy) and Maturity onset diabetes of the young (MODY)

Cammidge, in 1928, identified families with autosomal dominant diabetes indicating the first of the hereditary form of DM thus far. As per the WHO report on the classification of diabetes Mellitus, Monogenic diabetes, as the name implies, results from a single gene defect rather than the contributions of multiple genes and environmental factors as seen in type 1 and type 2 diabetes [3]. The gene defect may be either disruption of beta cell function or a reduction in the number of beta cells. A precise diagnosis may have a significant influence on the treatment modalities of the affected patients, long-term complications and screening of at-risk relatives [4]. Monogenic diabetes is much less common and represents 1.5-2% of all cases; and it is often misdiagnosed as either type 1 or type 2 diabetes.

Maturity Onset Diabetes of The Young (MODY)

MODY is a Monogenic form of diabetes that comprises a heterogeneous group of disorders characterized by a primary defect in pancreatic beta-cell function, early onset (classically presenting before the age of 25), non-insulin dependent, autosomal dominant inheritance, with absence of autoimmunity or, ketosis and presence of detectable C-peptide.

Tattersal was the first to notice at a marriage that the bride, bride's sister, maternal aunts and both nieces had DM as marked in the picture(Fig 1) below. He along with Fajans who was also working on this subsequently differentiated Monogenic DM on clinical ground, as a gene defect which affects three generations in a family as shown in the pedigree chart(fig 2).



Figure.1 R.B.TATTERSALL. QJM: An International Journal of Medicine, Volume 43, Issue 2, April 1974, Pages 339–357, https://doi.org/10.1093/oxfordjournals.qjmed.



Figure 2 Pedigree Chart

Online Mendelian Inheritance in Man (OMIM4) reports 14 different sub types of MODY (referred from 1 to 14) according to the order of the discovery, with mutations in 14 different genes, each characterized by unique genetic, clinical and metabolic features. HNF-1 α and GCK (Glucokinase) represents the most common forms of MODY phenotypes (30-65% and 30-50%, respectively), followed by HNF-4 α (5--10%) and HNF-1 β (<5%). The most common MODY sub types are MODY 3 and MODY 2. MODY 1, 5, and 4 are rare, whereas MODY 6-14 comprises a group of very rare forms of MODY.

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Fajans SS, Bell GI. Phenotypic heterogeneity between different mutations of MODY subtypes and within MODY pedigrees. Diabetologia 2006;49:1106–1108pmid:16502298



Ref : European MODY Consortium (n= 242) Stride et al Diabetologia 2002

Diet, Sulfonylureas/ meglitinide/ other oral anti-diabetic drugs e.g. thiazolidinediones, dipeptidyl peptidase-4 (DPP-4)inhibitors. sodium dependent glucose transporter-2 (SGLT2) inhibitors and Insulin (as required) are currently the mainstay of therapy for MODY.Mody 2 is a Glucokinase deficiency, the enzyme that traps the glucose inside the B cell. These patients have a mild fasting hyperglycemia throughout life. They do not require any treatment except during pregnancy. The other forms of MODY do not do well with Metformin as the initiating drug but show good response to Sulfonylureas.

Diagnostic Criteria (Tattersall and Fajans)

- 1. Age less than 25 years at onset
- 2. Autosomal dominant transmission of diabetes with three generations involved
- 3. Absence of ketosis at any time
- 4. Do not need insulin initially later may become insulin-requiring (Diabetes due to HNF 1 α and HNF 4 α defects- MODY 1 and MODY 3)

- 5. Isolated mild fasting hyperglycemia (Defects in glucokinase gene- MODY 2 – no treatment required)
- Diabetes with renal cysts/renal agenesis -RCAD (renal cysts and diabetes syndrome) – Defects in HNF 1β- MODY 5
- 7. Clinical criteria are no longer valid and genetic analysis is needed to confirm the diagnosis

Differences	between	MODY	and	Early	Onset
Type 2 Diab	oetes				

MODY	Early onset Type 2 diabetes
Non-obese	Obese /Overweight
Acanthosis nigricans uncommon - No insulin resistance	Acanthosis nigricans common -A sign insulin resistance
Three generation transmission with Only one parent affected	Both the parents could be affected
Only insulin secretory defect	Defects in insulin secretion and insulin resistance
Seen in all populations	Usually in populations with high prevalence of T2DM
Responds better to Sulfonylureas	Responds better to metformin

Neonatal diabetes Mellitus (NDM)

Neonatal diabetes Mellitus (NDM) has been defined as antibody negative, insulin-sensitive hyperglycaemia that is diagnosed within the first six months of life. It is further classified into two types: Transient neonatal diabetes (TNDM) - remittance before one-year of age followed by relapse in adolescence and persistence throughout life and permanent neonatal diabetes (PNDM). Development of NDM include KCNJ11 (30%), ABCC8 (20%), IDDM2 (20%), PTF1A, and FOXP3. These genes influence various aspects of glucose metabolism such as β-cell K-ATP channel modulation. insulin production. pancreatic development, and control of immune response.

Molecular Diagnosis

A significant challenge in the diagnosis of Monogenic diabetes lies in its overlap with type 1 and type 2 diabetes. The diagnostic use of Sanger sequencing is limited, considering the extent of locus and allelic heterogeneity associated with Monogenic diabetes. Novel approaches like whole or targeted exome capture are being increasingly used at present.

Indication for genetic testing for MODY includes the following major diagnostics criteria [5]:

- Hyperglycaemia diagnosed before the age of 25 in atleast 1 and ideally 2 family members
- Autosomal dominant inheritance, with a vertical transmission of diabetes through at least 3 generations, and a similar phenotype shared by diabetic family members
- Absence of insulin therapy at least 5 years after diagnosis or significant C-peptide levels even in a patient on insulin treatment
- Insulin levels that are often in the normal range, although inappropriately low for the degree of hyperglycaemia, suggesting a primary defect in beta-cell function
- Overweight or obesity is rarely associated (and is not required for the development of diabetes).

A cost-effective approach, avoiding unnecessary genetic testing, has been developed as a prediction model to differentiate MODY patients from T1DM and T2DM, using logistic regression. The factors taken into consideration by the MODY Probability Calculator are age at diagnosis, body mass index, HbA1c level, therapy (insulin or Oral Anti-diabetic drugs) and family history. However, this model has only been validated in the European subcontinent [10].

Personalized Medicine in Diabetes

Response to treatment in diabetes is determined by the genetic make-up of patients. Personalized medicine can reform the prevention, prediction, and management of diabetes and proves the 'one size fits all' concept invalid. Pharmacogenetic testing makes use of genotypic and phenotypic factors in various pathophysiological subgroups of diabetes patients. Use of genetic information in Monogenic forms of diabetes is more useful than in polygenic diabetes and can help to identify genetic variants and reclassify patients into pathophysiological subgroups. However, in years to come, this approach may be implemented for all forms of diabetes. Pharmacogenetic studies aim to define bio markers for predicting response to treatment in diabetes.

Early clinical diagnosis of MODY still remains a challenge for clinicians due to the shared features with either type 1 or type 2 or gestational diabetes Mellitus. Moreover, the facility for genetic testing is not available in many of the health care centers especially in developing countries like India. However, with the increasing availability and affordability of clinical exome sequencing the diagnosis of atypical forms of diabetes has been reformed [6]. Although the molecular diagnosis of MODY is facilitated with the technological advances, the importance of increasing awareness and nurturing vigilance on MODY among physicians needs to be reinforced. This gains utmost importance as treatment optimization. Prognosis definition and genetic counselling of family members are based on appropriate diagnosis.

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ROLE OF EXERCISE AND FAMILY IN DIABETES

* Sheryl Salis

Exercise along with diet, medication and education form the four pillars of diabetes management. The main advantages of exercise are that it increases longevity, prevents obesity, and reduces risk of some chronic illnesses such as diabetes, coronary heart disease, hypertension and its complications. Exercise benefits mental health with positive effects on symptoms of depression and anxiety due to the release of endorphins. Exercise also improves self-esteem and overall quality of life.

In individuals with diabetes, exercise induces weight loss, reduces visceral fat, increases muscle mass, improves insulin sensitivity and glucose utilization by the body thus lowering blood glucose levels and HBA1c. Exercising consistently can also help decrease glucose production from liver and lower the dosage of oral anti diabetes medications and insulin.

Despite well-documented health benefits of physical activity, the proportion of Indian's meeting the physical activity recommendations are relatively less. Study results from the ICMR-INDIAB study (Phase-1) [ICMRINDIAB-5] shows that a large percentage of people in India are inactive with fewer than 10% engaging in recreational physical activity. Therefore, there is an urgent need to promote physical activity to prevent the twin epidemic of diabetes and obesity in India.

Physical Activity Recommendations

Studies have shown that those who sat for the longest periods of time were at double the risk of developing diabetes or heart disease, compared to those who sat the least. Sitting for more than eight hours a day has been associated with a 90 percent increased risk of developing type 2 diabetes. ADA 2020 guidelines recommend that all adults and particularly those with type 2 diabetes, should decrease the amount of time spent in daily sedentary behavior. Prolonged sitting should be interrupted every 30 min for blood glucose benefits.

Most adults with type 1 and type 2 diabetes should engage in 150 min or more of moderate to vigorous-intensity aerobic activity per week, spread over at least 3 days/week, with no more than 2 consecutive days without activity. Shorter duration (minimum 75min/week) of vigorous intensity or interval training may be sufficient for younger and more physically fit individuals.

Adults with type 1 and type 2 diabetes should engage in 2–3 sessions/ week of resistance exercise on nonconsecutive days.

Flexibility training and balance training are recommended 2–3 times/week for older adults with diabetes. Yoga and tai chi may be included based on individual preferences to increase flexibility, muscular strength, and balance.

Evidence Based Benefits of Engaging in Regular Physical Activity

- Participation in regular physical activity improves blood glucose control and can prevent or delay type 2 diabetes, along with positively affecting lipids, blood pressure, cardiovascular events, mortality, and quality of life. Structured interventions combining physical activity and modest weight loss have been shown to lower type 2 diabetes risk by up to 58% in high-risk populations.
- Exercise lowered HbA1c values by 0.7% in people of different ethnic groups with diabetes who were taking different medications and following a variety of diets—and this improvement occurred even though they didn't lose any weight.
- All forms of exercise—aerobic, resistance,

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or doing both (combined training)—were equally good at lowering HbA1c values in individuals with diabetes.

- Resistance training and aerobic exercise both helped to lower insulin resistance in previously sedentary older adults with abdominal obesity at risk for diabetes. Combining the two types of exercise proved more beneficial than doing either one alone.
- Individuals with diabetes who walked at least two hours a week were less likely to die of heart disease than their sedentary counterparts, and those who exercised three to four hours a week cut their risk even more.
- Women with diabetes who spent at least four hours a week doing moderate exercise (including walking) or vigorous exercise had a 40% lower risk of developing heart disease than those who didn't exercise. These benefits persisted even after researchers adjusted for confounding factors, including BMI, smoking, and other heart disease risk factors.

In a study of 6,000 men followed for 14 years, each 500 kcal/week increase in physical activity reduced the age-adjusted risk of diabetes by 6%.

In a prospective study conducted on fourteen obese adults (67.9 ± 1.2 yr; Range: 61–77 yr) showed that exercise with weight loss lowers plasma Dipeptidyl Peptidase-4 (DPP-4) levels. Lower DPP-4 is linked to elevated insulin sensitivity. Reduced DPP-4 is also associated with improved fat oxidation and glucose tolerance. Habitual exercise may lower cardiometabolic disease risk by reducing DPP-4.

Diabetes Prevention Program (DPP)

The highly successful lifestyle intervention, Diabetes Prevention Program (DPP), a 27-center randomized clinical trial administered to 1,079 participants, which included 45% racial and ethnic minorities to determine whether lifestyle intervention or pharmacological therapy (metformin) would prevent or delay the onset of diabetes in individuals with impaired glucose

tolerance (IGT) who are at high risk for the disease. In the lifestyle intervention group, the goal for physical activity was selected to approximate at least 700 kcal/week expenditure from physical activities or at least 150 min of moderate physical activities similar in intensity to brisk walking. The DPP lifestyle intervention stressed brisk walking as the means to achieve the activity goal, but participants were given examples of other activities that are usually equivalent in intensity to brisk walking, including aerobic dance, bicycle riding, skating, and swimming. Participants were encouraged to distribute their activity throughout the week with a minimum frequency of three times per week, with at least 10 min per session. A maximum of 75 min of strength training could be applied toward the total 150-min weekly physical activity goal. The importance of lifestyle activities, such as using the stairs (instead of elevators), stretching. and gardening, was discussed: however, participants were instructed not to apply these types of activities toward the 150min goal.

The intervention was designed to achieve and maintain at least a 7% weight loss and 700 calories/week of physical activity in all lifestyle participants. These strategies proved to be very successful, as the lifestyle intervention resulted in a 58% reduction in the incidence rate of diabetes as compared to Metformin at 42%.

Pre-Requisites Before Embarking on Any Exercise Regime

Exercise must not be generalized, and an exercise plan must be customized for every individual with diabetes to minimize risk to the patient. Consideration must be given to blood glucose control, any other co-morbid medical condition, work schedule, skills and ability.

Before starting any exercise program, a detailed physical examination, medical history evaluation and laboratory investigations should be performed to verify the following:

- Blood glucose control, blood pressure control, absence of macro and micro vascular complications, stable cardiac function, absence of Peripheral artery disease and intermittent claudication, normal kidney function, absence of retinopathy, absence of Peripheral and autonomic Neuropathy, diabetic foot (detailed foot examination for skin integrity and deformities)

In the presence of proliferative or severe non proliferative diabetic retinopathy, vigorous aerobic exercise or resistance mav be contraindicated because of the potential risk of triggering vitreous haemorrhage or retinal detachment. They should be advised to undertake non-weight-bearing exercise such as riding a stationary/exercise bike, swimming etc.

Following photocoagulation, patients should be advised to avoid exercising for three weeks.

In the presence of severe peripheral Neuropathy, it may be best to perform non-weight-bearing activities such as swimming, bicycling, or arm exercises.

High intensity exercises that increases blood pressure, and therefore renal perfusion, is contraindicated in patients with nephropathy. In such patients, low to moderate intensity forms of exercise are recommended.

Individuals with Type 1 diabetes or on insulin therapy must match their pre- meal insulin dose with the carbohydrate content of the meal, test pre -meal blood glucose levels and consider anticipated activity to prevent hypoglycaemia.

Some fun-filled family activities can include:

- Cycling, hiking on a trail, playing out-door games, going to the gym, walking and running, yoga, swimming

Diabetes Educators can help individuals with diabetes find **SMART** ways to set their goals

- **Specific** what type of exercise will they do?
- Measurable how long, how often?
- Achievable is this patient convinced about achieving his goals?
- **Realistic** is it appropriate for an individual's fitness level
- **Timed** when do they plan to start?

Encourage individuals to reward themselves once goals are met.

Precautions – Exercise and Type 1 Diabetes

- Education about frequent patterns of glycemia during and after exercise, which may include initial transient hyperglycemia followed by hypoglycemia, is essential. Families should also receive education on prevention and management of hypoglycemia during and after exercise, including ensuring patients have a pre-exercise glucose level of 90-250 mg/dL (5.0-13.9 mmol/L) and accessible carbohydrates before engaging in activity, individualized according to the type/ intensity of the planned physical activity.
- Patients should be educated on strategies to prevent hypoglycemia during exercise, after exercise, and overnight following exercise, which may include reducing prandial insulin dosing for the meal/snack preceding (and, if needed, following) exercise, reducing basal insulin doses, increasing carbohydrate intake, eating bedtime snacks, and/or using continuous glucose monitoring.
- Frequent glucose monitoring before, during, and after exercise, with or without use of continuous glucose monitoring, is important to prevent, detect, and treat hypoglycemia and hyperglycemia with exercise.
- Patients need to monitor their blood glucose frequently after exercising because of the risk of delayed hypoglycemia. They may also need to decrease insulin or increase their bedtime snack to prevent a hypoglycemic event overnight.
- If blood glucose is >14mmol/L (252mg/dl), strenuous exercise is not recommended as it may cause the blood glucose to increase. If there is not enough insulin in circulation, the liver will respond to exercise by releasing more glucose. In type 1 diabetes, it may also lead to accelerated fat catabolism and ketone formation. There is also a high risk of severe dehydration.

JOURNAL OF DIABETES EDUCATION

• Exercise over extended periods of time may require additional source of carbohydrate during the activity. Intense exercise may require additional carbohydrate snack before, during and after the activity. Self-Monitoring of Blood Glucose (SMBG) or Ambulatory glucose profile (AGP)/Continuous Glucose Monitoring System (CGMS) at these times can help in decision making.

Precautions- Exercise in Type 2 Diabetes

- The risk of hypoglycaemia with exercise is reduced in type 2 diabetes. However, patients on insulin secretagogues or insulin therapy may need to adjust their medication prior to prolonged and excessive exercise and should always carry a source of glucose.
- Patients with cardiac history should consult their physician before undertaking an exercise regime. Considerations also need to be given to other co-morbidities such as arthritis and diabetic complications.
- To reduce the risk of hypoglycaemia, patients on oral hypoglycaemia agents or insulin should eat before exercising if the blood glucose is <6mmol/L (108mg/dl). More food may be needed during the exercise.

Special precautions need to be taken when treating hypoglycaemia would prove difficult; physical activity under water is an example. Patients at risk of hypoglycaemia should plan very carefully when undertaking activities of this kind.

ROLE OF FAMILY IN DIABETES AND EXERCISE

Family members can actively support and care for patients with diabetes. Most individuals live within a household that has a great influence on diabetes-management behaviours.

Diabetes Attitudes, Wishes and Needs second study (DAWN2) study conducted by Kovacs Burns K, Nicolucci A, Holt RI, et al. on more than 5000 adults with diabetes highlighted the importance of family, friends and colleagues in improving well-being and self-management. Through their communications and attitudes, family members often have a significant impact on a patient's psychological wellbeing, decision to follow recommendations for medical treatment, and ability to initiate and sustain changes in diet and exercise. Family cohesion have also been found to be positively related to patient's self-care behaviours and to improvements in blood glucose control.

In the Kerala Diabetes Prevention Program implementation, participants were encouraged to bring family members and other community members to take part in activities. Almost all participants (98%) reported that they had shared their learning's through group sessions with their family members. Forty-nine and 31% of the participants stated that they have received 'a lot of support' from their family members and friends, respectively.

Study published in Diabetes Care, 2010 by Diane K. King et al. showed that self-efficacy was strongly related to healthy eating and calories expended in physical activity, as was behaviour-specific support from family, friends, and community resources. Patient dietary and exercise adherence were positively correlated with patient and spouse diabetes self-efficacy.

As discussed earlier, hypoglycaemia can be a concern for patients taking insulin or certain oral medications for diabetes which causes low blood glucose levels. It is very important that family and friends understand diabetes, know the symptoms of hypoglycaemia, and its treatment. This will enable them to recognize the symptoms and take necessary actions in case of a hypoglycemic event where the patient is unable to help himself.

A qualitative study conducted by T. S. Advika et al. showed that the collective beliefs of the family members and support given to the patient with Type 2 diabetes are important facilitating factors in enabling them to exercise regularly.

The higher the frequency of family members encouragement of patients to exercise, the higher the proportion of patients persisting in exercise and the higher knowledge, skills and self-efficacy score. The higher the frequency of family members to accompany the patient to exercise, the higher the proportion of patients persisting in exercise. Encouragement and companion, instead of post criticism, are more effective methods to provide support.

Conclusion:

Exercise along with diet, medication and education is the cornerstone of diabetes management. Studies have shown that consistent, regular exercise can lower blood glucose levels, HBA1c and the dosage of oral anti diabetes medications and insulin.

Interventions in diabetes self- management education (DSME) by including family members of people with diabetes may be more effective in strengthening family social bonds, improving diabetes-related knowledge and ability to initiate and sustain changes in diet and exercise. Family cohesion have been found to be positively related to patient's self-care behaviours and to improvements in glycemic control.

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AN EDUCATOR'S EXPERIENCE OF A WINNING QUARTET - DOCTOR - PATIENT - EDUCATOR - FAMILY

* Zankhana Shetty

Diabetes is a chronic metabolic disorder that impacts physical, social and mental including psychological well-being of people living with it especially Type 1 diabetes Mellitus (T1DM). Life with type 1 diabetes (T1DM) requires extensive self-care management and in-depth knowledge about diabetes.

Diagnosis of Type 1 diabetes always comes with anger and frustration. Being diagnosed with type 1 diabetes can be scary and stressful for the child and family.

It is an established fact that family plays a significant role in the management of diabetes.

Let's understand from a real case scenario how Family support eases a patient's journey with diabetes by overcoming the hurdles together and how a diabetes educator facilitates this beautiful process of Winning over Diabetes!

Story of CHUTKU

Chutku, a 6-year-old boy had been unwell from last 10 days with complaints of stomach pain, vomiting, frequent urination and had lost 8 kgs of weight over past 3 months

Day 1

Primary Health Care Provider, after evaluation and other investigations diagnosed Chutku to have Type 1 Diabetes and broke the news

Parents (In Shock): - WHAT? Got angry and started asking a series of questions, like

We don't have diabetes then how come my child got?

School me ja sakta hai na?

Insulin jindagi bhar lena padega kya?

Kidney toh kharab nahi hogi na?

The Primary Health Care provider routes the

Distressed Family to a Diabetes Educator

Diabetes Educator interacts with them and provides them Intensive counseling and education on Pathophysiology of diabetes, Types of diabetes, what is Type 1 diabetes, basics of diet, need of insulin therapy and glucometer with the help of charts and diagrams.

The Parents were in denial mode yet. They were still trying to reason out that sugar must be high, because of the child's last week sweet binges. They had to recheck sugars and come back the next day. The child had not been initiated on insulin yet.

Day 2

Sugars were still high with fasting sugar at 300mg/dL and post prandial 435mg/dl).

Though the Parents were not convinced, unwillingly agreed to start medication as child was sick. Doctor started with insulin and the Diabetes Educator spoke to the family about insulin management, hypoglycemia and its treatment, home monitoring of blood sugar and diet.

Day 3

No contact with the patient.

Day 4

At Follow up, the Diabetes Educator, to increase awareness and involvement of family and child, explains diabetes management and diet with different games like nutritional snake & ladder game, bingo.

lweek after the follow up Chutku's health started improving with reduced sugar fluctuations. But parents were still in denial mode and psychologically stressed out. They had not disclosed about Chutku's Diabetes to anybody in family or school.

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Education sessions with the Diabetes Educator continued regularly on all aspects of diabetes management. The family and Chutku were counselled on dealing with guilt and how to build a support system to ensure better blood glucose control and safety. Carbohydrate counting session were proving to be of great help to Chutku's Diabetes Management.

After 5 months, it was observed that Chutku's sugars were getting low and had frequent hypoglycemia. Chutku was getting more "rewards" as sweets to manage hypos. This brought the parents to think that Chutku's diabetes had gone away and it was cured !!

Doctor and Diabetes educator, helped them understand that this was Honeymoon phase for Chutku diabetes and advised reduction in insulin dose and to continue monitoring sugar and regular follow up.

Despite the detailed counseling and education on Honeymoon phase Chutku and family missed monitoring sugars at home, insulin dose and routine follow ups many a times.

Two Months after the last follow up, Chutku again started complaining of stomach pain, frequent urination and weight loss. So, the family decided to check his sugar. And found them to be really high!!

Chutku and his parents became very depressed. But quickly realizing their mistake, they restarted his treatment and management with proper insulin doses and kept all monitoring records closely.

After this everything was smooth. Insulin and Chutku became Good Friends. Parents were happy and proud, that Chutku was managing well, taking insulin by himself and the sugars were well under control.

After 1 month, Chutku's sugars started going low again. Despite of reducing insulin doses and maintain proper food he was getting hypoglycemia every day!

How is that possible??

Here is the catch. On detailed conversation between diabetes educator and Chutku's parents the Educator found that Chutku was taking insulin in his room all by himself. On discussing more, Chutku confessed that he was taking double dose of insulin so that his sugars go low and he got to eat a sweet.

This was another eye opener for the family and they realized that they should stay INVOLVED at every step. After this, Chutku and his family always make sure that they were always together in Managing and have Defeated Diabetes!

That's the story of our Little Conqueror Chutku!

Moral of our Story: WE CAN WIN BETTER WHEN TOGETHER!

This is best accomplished using what we call the T. E. A. M approach. In Armor et al. systematic review about the effectiveness of family interventions, they found that people with diabetes had better metabolic control when a family was involved in an intervention. The most critical member of the T. E. A. M is the patient, family of the patient, physician, and a certified diabetes educator. The diabetes educator acts as a link between patients and physician and steers the patient from denial to acceptance & helps to bring compliance.

As a larger picture, we all as different arms of Medical Fraternity can win the battle against Diabetes by developing education and helping find the best approaches to support people with diabetes and their families in meeting the challenges of living with diabetes.

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QUESTION AND ANSWERS

Q. What is 'Lactose intolerance?' How is this different from 'Milk allergy' and what is the nutritional advice and prescription for these two conditions?

Lactose is the natural simple sugar or carbohydrate found in milk and milk products. Lactose is a disachharide made up of the two monosaccharides- galactose and glucose which form beta 1-4 glycosidic linkages.

Human infants and ruminant animals produce the enzyme lactase which allows breakdown of lactose during digestion. Conversely, the adult human population exhibits varied degree of capability for lactose digestion. For example, approximately 70% of Caucasians are able to digest lactose in adulthood compared to only 30% of ethnic population from South-East and Far-East Asia, certain African and Latin-American population. The latter genetic pool tends to have reduced ability to digest the lactose in milk by adulthood.

By the same count, lactose intolerance is highly prevalent in India. Adult Indians are unable to fully metabolise the lactose in milk and suffer from symptoms of stomach cramps, bloating, flatulence and diarrhoea. High prevalence of lactose intolerance in India needs to be considered while designing a nutrition plan.

This condition is not the same as Milk allergy but is frequently mistaken to be so by many health professionals. Milk allergy is defined as an abnormal immune response to milk and dairy products which mainly arises due to naturally occurring protein- casein and/or whey present in milk and milk products. It is a reaction leading to allergy symptoms of wheezing, hives, vomiting and even anaphylactic shock.

The two conditions demand completely different approach in nutritional therapy. Lactose intolerance

individuals can be alleviated of their symptoms if their diet advice includes prescription of a small quantity (half teacup) of milk per day and use of lactose-free milk and replacement of most milk with milk products with fermented versions such as yogurt, curd, cheese, cottage cheese (paneer). These alternatives are well tolerated by lactose intolerant individuals. Evidence shows that probiotics are not effective universally in this condition. In fact, an indiscriminate diet advice to completely eliminate milk and milk products and go 'Vegan' is also incorrect. Nor does this condition warrant replacement of all milk and milk products with soy, almond or coconut milk.

On the other hand, an individual with Milk allergy needs to quit all types of animal sources of milk and replace it with options of soy milk or almond milk.

Hence, a lactose intolerant individual is able to manage with local, inexpensive options which are already an integral part of the traditional Indian diet. Whereas, a milk allergic individual requires special alternatives to ensure immune safety and prevent life-threatening consequences.

As a health-care professional, a detailed assessment and appropriate action is crucial before one jumps to conclusions between 'lactose intolerance' and 'milk allergy'!

Q. What are the type of exercises contraindicated in the exercise regimen of a diabetic with complications?

An exercise regimen is also usually prescribed for a person with diabetes for achieving optimum glycemic control and pursuing a healthy and active lifestyle. The range of exercise types included are cardiovascular, strengthening (resistance training) and flexibility to achieve a complete fitness. Whilst a health care professional prescribes type, intensity and frequency of any exercise regime for a diabetic, they have to carefully consider the co-existing complications and/or risk factors the individual may be suffering from. For example, a long standing Type 1 or Type 2 diabetic could be suffering from macrovascular complications complications. and/or microvascular These complications could range from peripheral artery disease (PAD), retinopathy, neuropathy and nephropathy along with risk factors such as obesity, hypertension and hyperlipidemia.

The recommended exercise program is required to be tailor-made to each individual incorporating a standard exercise plan with a warm-up, activity and cool-down period. This makes it essential for a health care professional to evaluate and then prescribe the exercise plan, preparation before and after, precautionary measures to be taken if any and contraindications.

It is imperative that certain contra-indicatory exercises be omitted to prevent any exacerbation of the disease. For example, a diabetic with proliferative diabetic retinopathy (PDR) should be strongly advised against strenuous aerobic exercise involving running, jumping and resistance exercise involving straining, jarring movements, weight-lifting as it could lead to a vitreous hemorrhage or retinal detachment.

Yoga is a flexibility and stress relieving form of exercise and is very popular. I would impress that specific contraindicated asanas be clearly explained to diabetics to avoid disastrous consequences. Yoga done in hot conditions or asanas involving the forward bending or backward bending or holding one's breath should not to be undertaken. For example, kapalbharti is to be completely avoided as it involves holding one's breath intermittently which can cause an eye-bleed in blood vessels of the eye of a diabetic with retinopathy and eventually even lead to loss of eye-sight or complete blindness. On the other hand, simple pranayama, anulomvilom could be practiced. Yet, individuals have to be warned to refrain from any of the above prescribed and/or contraindicated exercises if they develop any symptoms of uneasiness, nausea, dizziness, headache or blurred vision.

Hence, it is the responsibility of the health care professional to ensure that every diabetic is counselled regarding their exercise regimen.

MK

Question 3:

Q. What are the exercises a patient can undertake if she/he has difficulty in walking?

Exercise plays an important role in our lives. Benefits of exercise include weight management, muscle strengthening, mental health and relief from stress. Individuals who find difficulty in undertaking walking due to their own body weight, damaged knees or poor eyesight or foot injury require an equivalent alternative. Such individuals with diabetes and/or complications can follow an exercise regime involving nonweight bearing exercises. This ensures that there is no weight exerted on these affected body parts. For example, exercise such as swimming, stationary cycling and upper and lower body exercises. This allows the body to do both cardiovascular and resistance training. Equivalent quantum of exercise can be prescribed to ensure healthy weight management through these alternative exercise regimes.

MK

RECIPES

GRANOLA (SUGAR FREE)



Ingredients

0	
Rolled oats	25 gm
Sunflower seeds	15 gm
Pumpkin seeds	15 gm
Sesame seeds	10 gm
Flax seeds	5 gm
Orange juice	25 ml
Olive oil	1 tsp
Apple/strawberries	2-3 slices
Yoghurt (hung)	30 gm

Method:

- First, mix the orange juice with the oats. Then add all other remaining ingredients.
- Preheat the oven to 325 degrees F.

- Spread the mixture onto a baking tray and bake for 45 minutes.
- Keep turning the mixture while baking.
- Remove from the oven and leave until cool.
- Add the hung yoghurt, almonds and fresh fruits.

Provides 2 servings

Nutritional information per serving:

Energy (kcal)	Carbohydrates (gm)	Protein (gm)	Fats (gm)	GI
400.8	22.08	16.37	26.55	Low

Special features:

- A healthy preparation of granola
- A healthy breakfast cereal.
- A high protein recipe

WHEAT MILLET PARATHA



Ingredients

Whole Wheat flour 15 gm

Sanwa millet (samvat ke chawal) 15 gm

Ragi flour 35 gm

Soya granules 5 gm

Sesame seeds 10 gm

Sunflower seeds 5 gm

Pumpkin seeds 5 gm

Flax seeds 5 gm

Moringa pwd (drumstick leaves powder) 10 gm

Oil 1 tsp

Chilli powder and Salt to taste

Method:

- To make this recipe, soak the soya granules in hot water for some time. Crush the soaked soya granules using the grinder
- Now take a bowl and add crushed soya granules, whole wheat flour, ragi flour, sesame seeds, sunflower seeds, pumpkin seeds, flax seeds, salt, red chilli powder and turmeric powder. Knead into a soft dough. Keep it aside for 15- 20 minutes. Then divide the dough into equal halves and shape into small balls.
- To begin making wheat millet paratha, in a large bowl combine whole wheat flour, ragi flour, samvat ke chawal, sesame seeds, sunflower seeds, pumpkin seeds flax seeds
- Now, take a dough ball from the mixture and roll it into a circle. Place the paratha over the tawa and roast it well on both the sides till it appears golden brown using minimal oil. Serve hot with some chutney or dip.

Provides 2 servings

Nutritional Information per serving:

Energy	Carbohydrates	Protein	Fats	GI
(kcal)	(gm)	(gm)	(gm)	
393	44.6	12.14	12.14	Medium

Special features:

- A healthy preparation of wheat millet paratha
- A high protein and calcium recipe
- Medium GI food, suitable for breakfast or snacks for diabetics.

HOW KNOWLEDGEABLE ARE YOU?

- 1. What is the normal level of Vitamin D3 in blood serum?
 - a. >20ng/dl
 - b. >30ng/dl
 - c. >50ng/dl
 - d. >100ng/dl
- 2. What is the amount of sodium in 1 gram of salt?
 - a. 200 mg
 - b. 400 mg
 - c. 500 mg
 - d. 800 mg
- 3. How much maximum caffeine consumption is allowed in a day?
 - a. 200mg
 - b. 300 mg
 - c. 400 mg
 - d. 500 mg
- 4. From the following list of amino acids choose a non-essential amino acid?
 - a. Glycine
 - b. Leucine
 - c. Valine
 - d. Cystine
- 5. What is the ideal length of an insulin needle?
 - a. 2-8 mm
 - b. 5-10 mm
 - c. 3-9 mm
 - d. 4-8 mm
- 6. which vitamin enhances the absorption of calcium?
 - a. Vitamin A
 - b. Vitamin B
 - c. Vitamin C
 - d. Vitamin D

- 7. Which vitamin is necessary for the metabolism of carbohydrates?
 - a. Vitamin C
 - b. Vitamin E
 - c. Vitamin B1
 - d. Vitamin D3
- 8. Which vitamin enhances absorption of iron?
 - a. Vitamin K
 - b. Vitamin C
 - c. Vitamin B
 - d. Vitamin A
- 9. Which type of insulin should be used in an insulin pump?
 - a. Rapid acting
 - b. Short acting
 - c. Long acting
 - d. Pre- mixed
- 10. Which main nutrient content is considered when prescribing a diabetic diet?
 - a. Fats
 - b. Proteins
 - c. Vitamins
 - d. Carbohydrates

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SAAWERS:

DIABETES TODAY

Dr. Chandalia's DENMARC in collaboration with Help Defeat Diabetes Trust and Association for Diabetes Care and Prevention (ADCP) presents to you Diabetes Today Magazine

Help Defeat Diabetes is a non-profit public trust whose main objective is promoting education and awareness in people suffering from diabetes as well as people in those at increased risk.

It is a lifestyle magazine that demonstrates how to live fully each and every day while managing diabetes.

Who can subscribe?

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How many issues are published in a year?

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HELP DEFEAT DIABETES TRUST Announces

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Help Defeat Diabetes Trust (HDDT) is a registered, non-profit public trust, having amongst its many objectives, the main objective of promoting education and awareness about diabetes among people from different fields.

Who can enroll?

Graduates in Nutrition, Nursing, Pharmacy, Occupational and Physiotherapy.

What is the duration of the course?

6 months, including 3 months of hands-on training and experience with a recognized mentor in your own town (see the on our website).

How will I get the course material?

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What are the course fees?

The standard fees for the course are INR 10,000/- only.

Where can I get more information about this course?

Kindly visit our website http://www.helpdefeatdiabetes.org or you can get in touch with us on our email ID heldefeatdiabetesinfo@gmail.com.

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(For eligibility criteria: Check Website www.diabeteseducatorsindia.com)

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Invitation to write in the

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Biographical information:

Please include biographical information, including affiliation of all authors and email of corresponding author.

Language and format:

Manuscripts should be in English and submitted electronically to ademembers@gmail. com. Please see the topics covered recently at the Association website, as all issues of journals are seen on this website (https://www.diabeteseducatorsindia.com). Interested candidates can e-mail their topics for approval. Please note that your targeted readership consists of diabetes educators, diabetologists, nutritionist, nurses, pharmacists and people with diabetes

Length:

About 2000 words is optimum, but this can change if required.

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Dr. Chandalia's DENMARC aims to enhance the quality of Diabetes education in India by creating a world-class research and education environment and to build up a platform of networking and knowledge sharing within diabetologists and/or diabetes educators.

Challenges in Diabetes Education 2019 places special emphasis on supporting educational initiatives that have the potential to improve and significantly revolutionize diabetes care, enhance self-management and/or support patients with Type 1 or Type 2 Diabetes Mellitus. The educator should describe an individual or group case history and identify the problem in diabetes education. Furthermore, s/he should describe the plan of education to resolve the issue, partly or totally. The issue described may be related to patient perceptions, knowledge, behaviors and implementation of advice given. S/He should describe her struggle in resolving the issue including her triumphs and failures, the methodologies used and ethical, socio-economic and behavioral aspects of the case.

General Rules and Regulations regarding the eligibility Criteria for the Award

- The applicant of the Award should be a citizen of India.
- The case discussion should be on the subject of Diabetes Education.

The best case chosen by a group of referees will be awarded "Challenges in Diabetes Education Award- 2020" - which will carry a cash prize of Rs 10,000. The awardee will get the opportunity to present the case in the annual meeting of Association of Diabetes Educators and publish it in the journal of Diabetes Education.

The last date for the submission is 15th August, 2020 !!!!

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TOUJEO[™] SoloStar® insulin glargine injection

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Toujeo[™] addresses the worry of insulin-related body weight gain¹



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* Confirmed I3.9 mmol/L (170 mg/dL) or severe hypoglycaemic events (24 hours). A Better glycaemic control and less hypoglycaemia with insulin glargine 300 U/mL vs glargine 100 U/ML Ritzel R et al. Diabetes Obes Metab. 2015;17(4):386–394. 2. Becker RH, et al. Diabetes Care. 2015;38:637-643. 3. Toujeo^M prescribing information 4. Strong J et al. Curr Med Res Opin.2017 Apr;33(4):785-793

INSULIN GLARGINE INJECTION

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COMPOSITION: Insulin glargine 300 U/ml. 1 ml contains 10.91 mg insulin glargine I.P., corresponding to 300 U of insulin glargine. INDICATION: For the treatment of diabetes mellitus in adults. DOSAGE AND ADMINISTRATION: Toujeo[™] is given subcutaneously. Toujeo[™] is administered once daily, at any time during the day, preferably at the same time every day. The recommended daily starting dose is 0.2 U/kg once daily followed by individual dosage adjustments. When needed, patients can administer their injections up to 3 hours before or after their usual time of administration. The desired blood glucose levels as well as the doses and timing of anti-hyperglycaemic medications must be determined and adjusted individually. Toujeo[™] Is not the insulin of choice for the treatment of diabetic ketoacidosis. Changing from once-daily basal insulin products to once-daily Toujeo[™] can be done unitto unit basal insulin dose. Changing from twice-daily basal insulin products to once daily basal insulin products to once daily basal insulin basal insulin basal insulin basal insulin products to once daily basal insulin basal hepatic impairment. Close glucose monitoring is recommended. SAFETY-RELATED INFORMATION Contraindications: Toujeo M must not be used in patients hypersensitive to insulin glargine or any of the excipients. Warnings: No Core Safety Information Precautions: General Insulin treatment generally requires appropriate diabetes self-management skills including glucose monitoring, proper injection technique and hyporglycaemia management. Patients and their relatives must know what steps to take if hyperglycaemia or hypoglycaemia occurs or is suspected, and they must know when to inform a physician. Hypoglycemia: The time of occurrence of hypoglycaemia depends on the action profile of the insulins used and may, therefore, change when the treatment regimen is changed. As with all insulins, particular caution should be exercised, and intensified blood glucose monitoring is advisable, in patients in whom sequelae of hypoglycaemic episodes might be of particular clinical relevance. The prolonged effect of subcutaneous Toujeo™ may delay recovery from hypoglycaemia. In patients with renal impairment or severe hepatic impairment, insulin requirements may be diminished. In the elderly, progressive deterioration of renal function may lead to a steady decrease in insulin requirements. Hypoglycaemia can generally be corrected by immediate carbohydrate intake. So that initial corrective action can be taken immediately, patients must carry a minimum of 20 grams of carbohydrates with them at all times. Intercurrent illness: Requires intensified metabolic monitoring. In many cases urine tests for ketones are indicated, and often it is necessary to adjust the insulin dose. Medication errors prevention: Insulin label must always be checked before each injection to avoid medication errors between ToujeoTM and other insulins. The patients must also be instructed to never use a syringe to remove ToujeoTM from the SoloStar pre-filled pen into a syringe and not to re-use the needles. Pregnancy & Lactation: It is essential for patients with pre-existing or gestational diabetes to maintain good metabolic control throughout pregnancy to prevent adverse outcomes associated with hyperglycaemia. Toujeo can be used during pregnancy, if clinically needed. Insulin requirements may decrease during the first trimester and generally increase during the second and third trimesters. Immediately after delivery, insulin requirements decline rapidly. Careful monitoring of glucose control, is essential in such patients. Patients with diabetes must inform their doctor if they are pregnant or are contemplating pregnancy. Adverse Reactions: Hypoglycaemia is most frequent and may occur if the insulin dose is too high in relation to the insulin requirement. A marked change in glycaemic control may cause temporary visual impairment. Lipodystrophy may occur at the injection site. Allergic reactions at the injection site includes redness, pain, itching, hives, swelling or inflammation. Immediate type allergic reactions are rare

18

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