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To Dispel Darkness Of Diabetes

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To Dispel Darkness of Diabetes

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THE OMINOUS OCTET OF TYPE 2 DIABETES

*** Shaival Chandalia**

Our Understanding of the pathophysiology of type 2 diabetes has advanced over the last decade or so. With the development of newer drugs, knowledge has sometimes flowed backwards (from treatment to pathophysiology or from advances to basics). This has resulted in the development of an understanding that type 2 diabetes is not only a disease of muscle, liver and beta cells of pancreas but something more pervasive. The name 'Ominous Octet' is given to the eight organs whose dysfunction is responsible for the development of type 2 diabetes. The organs (besides muscle, liver and beta cells of pancreas) are brain, kidney, adipose tissue,alpha cells of pancreas and gastrointestinal tract. So we have moved from the triumvirate of muscle, liver and beta cell dysfunction to the ominous octet. This synthesis of information was first offered by Ralph D' Fronzo.

A lot of advances in our understanding of type 2 diabetes (fortuitously or otherwise) is due to the development of new medications. The role of alpha cell dysfunction and high glucagon levels was brought to the fore by the class of medications called DPP4 inhibitors and GLP1 analogs. Also the role of the gastrointestinal tract in type 2 diabetes was brought out by the incretin effect or lack thereof when the incretin axis was discovered.

Similarly the role of the kidney in glucose homeostasis and type 2 diabetes was brought into the limelight by the development of SGLT2 inhibitors. In fact, we struck gold with this class of medications as not only are sugars controlled but there is cardio and reno- protection as well. In particular, it was found that the kidneys reabsorb a greater fraction of glucose from the renal tubules in type 2 diabetes.This glucose is reabsorbed through transporters called SGLT2 (sodium glucose co-transporter 2) along with sodium. Hence SGLT2 inhibitors work by inhibiting these transporters resulting in a glucosuria which leads to lowering of blood glucose.

Adipose tissue is well recognised now as an endocrine organ. It secretes hormones called adipokines namely leptin and adiponectin. The gut as alluded to earlier is being recognised now as the largest endocrine organ in the body. So as our understanding expands, so does our therapeutic armamentarium which in turn offers new facets in our understanding of type 2 diabetes.So this is a continuous seamless process, a partnership between the lab and clinic, between universities and industry.

What are the advantages of this process ?

Traditionally, medications for diabetes were classified as those affecting insulin secretion or those affecting insulin resistance. Prime among them were sulfonylureas which are secretagogues and metformin, pioglitazone which are insulin sensitisers.The development of SGLT2 inhibitors offered a new avenue for the treatment of type 2 diabetes which did not involve insulin secretion

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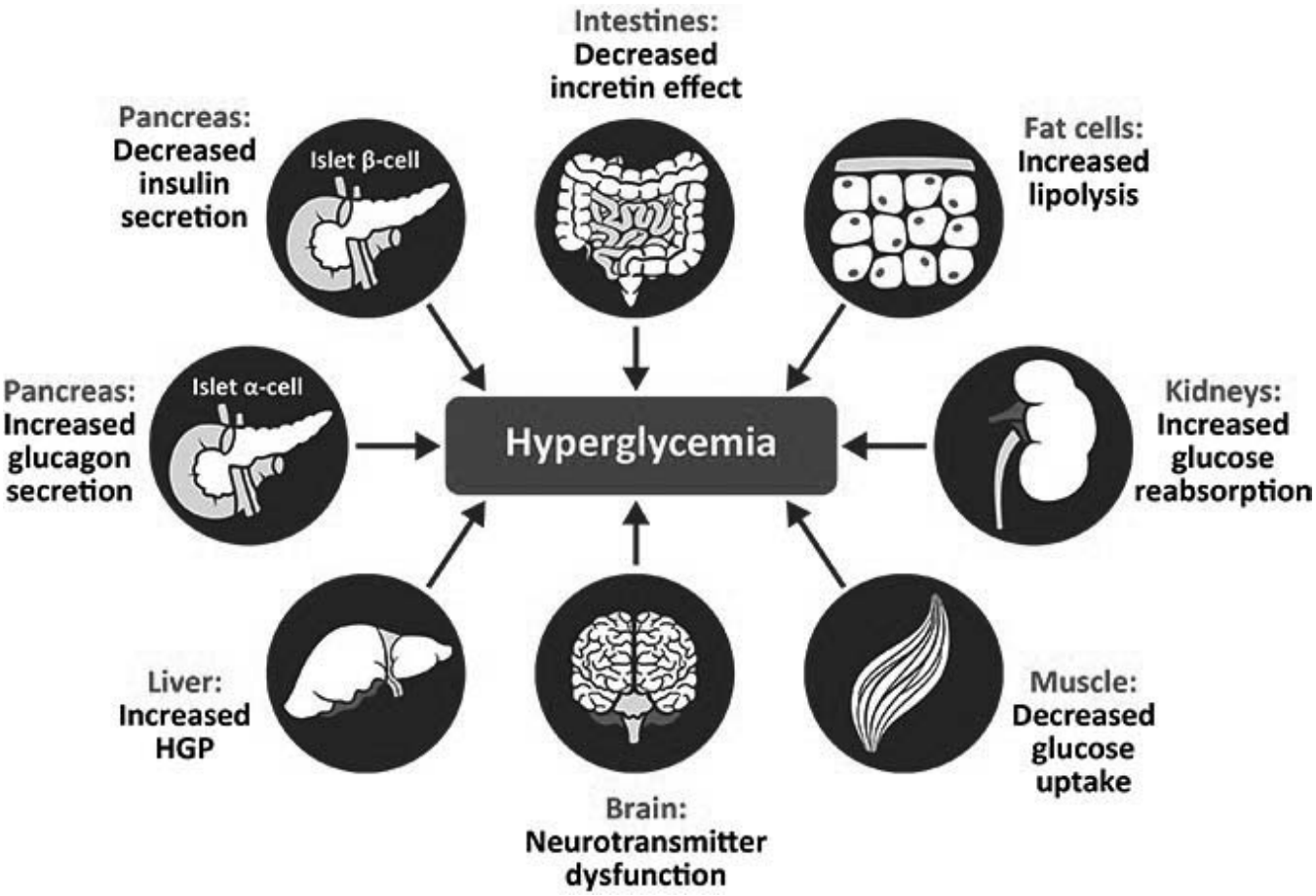
or insulin resistance, i.e they will continue to work as long as the kidneys are working.

This is advantageous as it provides an avenue for treatment of type 2 diabetes at any stage in the natural history of type 2 diabetes i.e even after beta cell exhaustion and beta cell failure. Some of the other advantages (and very significant ones) are the lack of hypoglycaemia and weight gain.This is due to the fact that the perturbations of homeostasis that occur in type 2 diabetes are remedied in a very physiological manner with these classes of new medications. Hence we are developing a more refined way or a more delicate way of treating type 2 diabetes (better the plier rather than the sledge hammer).

Our new found knowledge now informs our decisions. We have now 6 classes of oral medications for the treatment of type 2 diabetes i.e sulfonylureas, metformin, pioglitazone, DPP4 inhibitors, SGLT2 inhibitors and alpha glucosidase inhibitors. We have 2 classes of injectable medicines i.e GLP1 analogs and various type of insulin. We can now combine these agents in an additive and sometimes synergistic manner. Our choices are now individualised to the characteristics of each patient. i.e. his age, comorbid conditions, complications and so on. It can be said that we have achieved a significant deepening of our understanding of type 2 diabetes and have better tools to treat it.

Ominous Octet



DIABETES EDUCATOR'S ROLE IN FOOT CARE

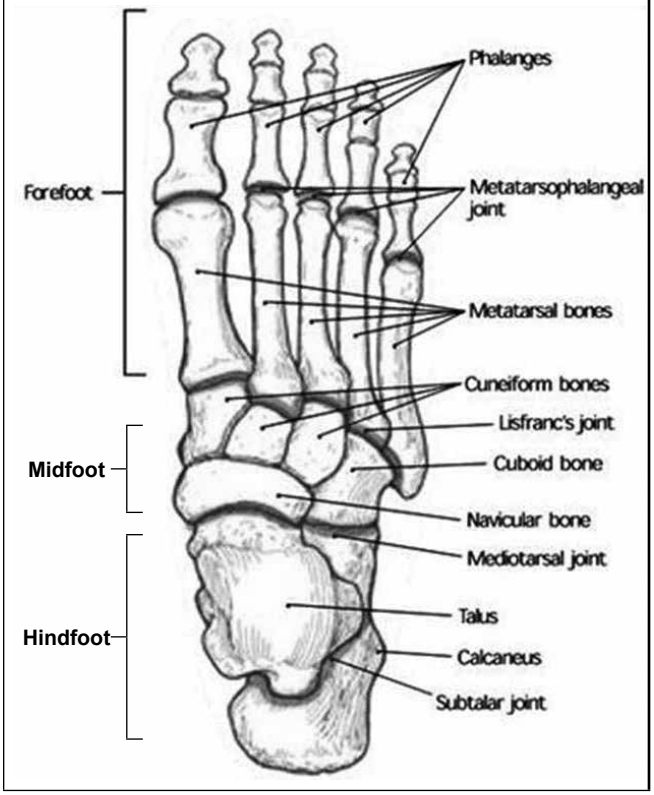
*** Vedavati Purandare**

'A minute spent on foot care saves a limb' this dictum applies to people with diabetes. Foot problems are commonly seen in people with diabetes. And most of these can be prevented by adequate foot care. Hence it is very important for healthcare provider to educate subjects with diabetes about foot care and proper footwear. Foot examination is equally important to examination of heart, kidneys and eyes in diabetes.

Healthcare providers specializing in foot care are referred as podiatrists. In India podiatrists are not available in most of the hospitals hence role of diabetes educators in foot care delivery is very important.

BASICS ABOUT FOOT

Figure 1- Basic anatomy of Foot

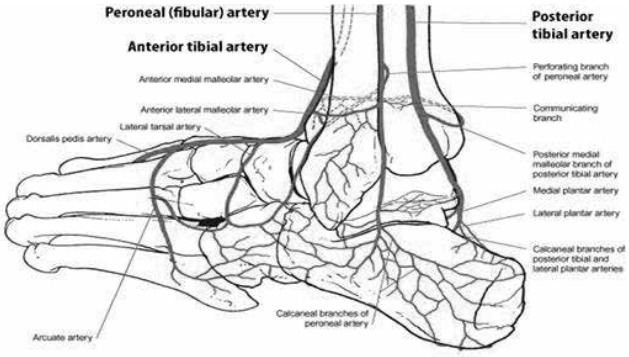


Foot is a very important organ as it bears weight of human body. As shown in figure 1, it is made up of 26 bones (7 tarsal +5 metatarsal +14 phalanges), 38 joints and more than 100 muscles, tendons and ligaments. For practical purpose foot is divided into 3 parts forefoot, midfoot and hindfoot.

Blood supply of Foot –

There are two main arteries palpable in the foot to assess blood supply of the foot as shown in figure 2

Figure 2- Blood supply of Foot



Palpation of dorsalis pedis artery- Lateral to extensor hallucis tendon, distal to the prominence of navicular bone

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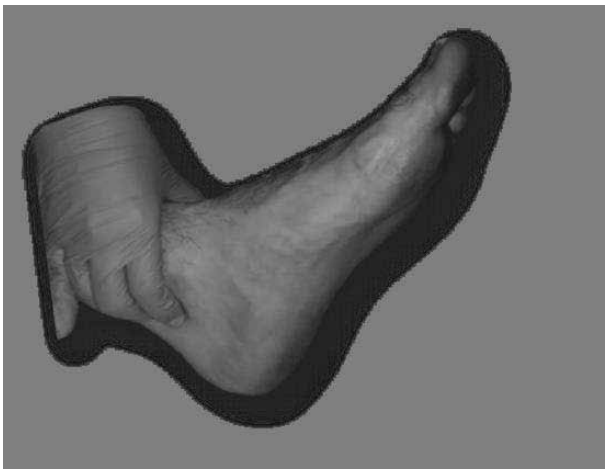
Palpation of posterior tibial artery -posterior and inferior to medial malleolus



DIABETES AND FOOT COMPLICATIONS-

What causes Diabetic foot?

Long standing diabetes affects foot in various ways. Diabetic neuropathy (nerve damage), peripheral arterial disease (decreased blood supply), foot ulcers and nonhealing wounds are the complications of foot which can be prevented if care is taken regularly from beginning.

About 15% people with diabetes develop foot ulcers during their lifetime. Foot ulcers in diabetes have increased chances of lower extremity amputation.

Nerve damage (neuropathy) - Elevated blood glucose levels over time can damage the nerves of the foot, decreasing a person's ability to notice pain and sensations. Without these sensations, it is easy to develop calluses (pressure spots) and accidentally injure the skin, soft tissue, bones, and joints. Over time, bone and joint damage can adversely alter the shape of the foot. Neuropathy also weakens foot muscles, further contributing to foot deformities.

Poor blood circulation (peripheral arterial disease) - High blood glucose levels damage blood vessels, decrease blood flow to the foot due to blockages in the blood vessels (atherosclerosis). This poor circulation contributes to the formation of ulcers and impairs wound healing. Microorganisms (bacteria and fungi) thrive on high levels of blood glucose and bacterial and fungal infections can break down the skin and complicate the ulcers.

More serious complications include deep skin and bone infections. Gangrene (death and decay of tissue) is a very serious complication that may include infection; widespread gangrene may require foot amputation. This tragic consequence can be prevented in most patients by adequate foot care.

Symptoms related to feet in diabetes?

- Numbness and /or loss of sensation
- Tingling
- Burning in the feet
- Pain in the lower limbs
- Toe deformities –change in shape
- Joint deformities in the feet when the affected joint is swollen, distorted or unstable
- Foot ulcers which could be nonhealing
- Skin infection -bacterial or fungal
- Recurrent fungal infection in the toe webs (athlete's foot) or toe nails (onychomycosis)

Basics about examination of foot- pointers for diabetes educators

Gait - Normally in walking cycle there is a stance and swing phase. In people with severe neuropathy there is stamping gait

Look at footwear - If the footwear is old or shows uneven wear and tare it might be troublesome for patients

Skin - Watch for dryness of skin, heel cracks, hyperpigmentation, and hair growth

Musculoskeletal examination - Examination of joints to see for deformity like hammer toe, Charcot foot

Blood Circulation - Palpation of dorsalis pedis and posterior tibial arteries

Neurological examination - Neuropathy testing by monofilament and various other ways

Monofilament testing for Neuropathy

Dermatological changes- Dry, scaly, thickened and cracked sole

Shiny appearance, Hair loss, Change in color

Multiple Callosities- pressure points

Advice for patients to prevent foot complications in diabetes

Keeping blood glucose in good control and taking care of feet every day can help avoid serious foot problems. Being a very important part of diabetes management team, a diabetes educator can instruct patients as mentioned below

Advise them to check feet every day

Instruct patients that they may have serious foot problems, but feel no pain. Instruct them to check feet for cuts, sores, red spots, swelling, and infected toe nails. Patients with diabetic neuropathy should take special care of their feet on day to day basis. Advice them to find time to check feet each day. Checking feet should be a part of everyday routine. Take help of a plastic mirror to see feet. Also can ask a family member or caregiver to help you checking feet if bending is a problem

Advise patients to wash feet every day and keep them clean

Advise them to wash feet in warm, not hot, water. They should not soak feet in water for long time. Before bathing or showering advice them to test water to make sure it is not too hot.

Advise them to dry feet well especially between the toes. They can use talcum powder to keep the skin between toes dry.

We should advise patients specially ladies to avoid toe rings

Advise to keep the skin soft and smooth

Patients can apply a thin coat of skin lotion, cream, or petroleum jelly on the tops and bottoms of feet.

Advise them not to apply lotion or cream between your toes because this might cause infection.

If patients have corns and calluses

Advise them not to cut corns and calluses .They should not use razor blades, corn plasters, or liquid corn and callus removers which might damage their skin.

If patients have corns and calluses, advise them to consult doctor or podiatrist regarding the best way to care of them.

Advise patients to trim their toe nails each week or when needed

Advise them to trim toenails with clippers after they wash and dry feet.

Podiatrist can trim toenails if patients can't see well, or they cannot reach feet. If patient's toenails are thick or yellowed, curved and growing into the skin, ask patients not cut into the corners of the toenail ask them to consult podiatrist and foot surgeon.

Advise them to wear shoes and socks at all times

Suggest patients to wear shoes and socks at all times. They should not walk barefoot – not even indoors – because it is easy to step on something and hurt the feet.

They should wear smooth clean socks with shoes to help avoid blisters and sores.

Advise them to check the inside of shoes before they put them on and be sure that the lining is smooth and that there are no objects in them.

Suggest them to wear shoes that fit well and protect feet.

They should not wear tight socks, elastic or rubber bands around legs.

Advise them to protect feet from hot and cold

Advise them to protect feet from heat, hot surfaces, hot water as well as cold air and cold surfaces.

Suggest them to wear shoes on hot pavement.

They should not put hot water bottles or heating pads on their feet.

They should wear socks at night if their feet get cold.

Advise patients to stop smoking and be more active

Smoking leads to reduced blood supply to feet and hence patients should stop it.

Walking, swimming, and bicycling are good forms of exercise that are easy on the feet.

Avoid activities that are hard on the feet, such as running and jumping.

What if patients have wound over foot?

Advise them to consult Doctor/ Foot care expert - They should never neglect the wound and see a doctor as early as possible. They should not wet their foot (while bathing, cover it with polyethylene bag)

Complete offloading should be advised in order to remove pressure on the wound till it heals (activity like walking delays the healing process). They should be advised to change dressing at intervals mentioned by the doctor

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ROLE OF FRUITS IN DIABETIC DIET

* Megha Kothari

Diet plays an equally important role as medicines in controlling blood sugars. Correct diet in correct quantity and quality matters a lot. There are various myths about the diet. Patients usually get misguided by false e- messages and pictures about the diet. Some people start eating less or quit the meal to control the blood sugar or stop a particular food group having a notion in their mind that the particular food group is the only cause for an increase in blood sugar.

One of such food groups is "fruits"; many patients misunderstand that fruits are the main reason for rise in blood sugar. But it's a myth. Eating fruits on correct time and correct choice of fruit will help you incorporate essential elements such as vitamins, micro minerals and fibers in your diet. Vitamins and micro minerals help in metabolism. Fibers will help in maintaining satiety level and improve the digestion. Therefore, making a right choice is very important for any fruit, based on carb content of a particular fruit.

A normal person is allowed 2 to 3 servings (each serving 80gm) fruits in a day. For a diabetic person 2 servings (each serving 50g) fruit is allowed in a day.

At what time fruits should be consumed:

- Empty stomach
- 2 hours after meal.

Things to be considered while selecting any fruits:

- Seasonal and locally available fruits.
- Glycemic Index (GI): GI is a measure of the effects of carbohydrates contained in the food on blood sugar levels. High GI (70 or above) foods will produce a rapid increase in blood sugar levels after a meal whereas low GI (55 or less) foods will have slower and lesser rise in blood sugar levels.
- Glycemic Load (GL): GL of food is a number that estimates how much the food will raise a persons blood glucose level after eating it.

The GL of foods is calculated by multiplying the GI by the amount of carbohydrate divide by 100.

Table 1: Range of Glycemic load

Glycemic Load (GL)	Range
Low GL	1 and 10
Moderate GL	11 to 19
High GL	20 or above

Hence, fruits having lower glycemic index and glycemic load should be chosen.

Table 2: Low glycemic fruits

Fruits	Glycemic Index	Glycemic load
Grape fruit	25	3
Peaches	28	4
Oranges	33	3
Pears	33	3
Apricots	34	4
Apples	39	6
Strawberries	40	2
Mangos	51	5
Blueberries	53	2
Watermelon	64	5

* Megha Kothari, Nutritionist at Diabetes Endocrine Nutrition Management and research Center (DENMARC), Mumbai.

While selecting fruits, sodium and potassium content of the fruits should be considered as in some patients sodium and potassium is restricted. As fruits are rich source of sodium and potassium, selecting fruit is very tricky.

High sodium intake predicted the risk of type 2 diabetes independently of other risk factors including physical inactivity, obesity and hypertension (2)

Fruits and vegetables received great attention in a strategy to increase the nutritional value of meals while reducing energy density and intake(3). The need to ensure a 2.5 to 3.5g daily K+ supply from fruit and vegetable represents a strong.

In addition to reduction of sodium intake, increasing dietary potassium intake may positively affect blood pressure and possibly also glucose metabolism in many people. This concise review not only summarizes the studies linking potassium to blood pressure and diabetes, but bring out the important of potassium content in the diet (4).

Table 3: Sodium content of fruits

Sodium		
Low	**Moderate**	**High**
Apple	Guava	Tamarind pulp
Lemon	Fig	Raisins
Cherries red	Jambu ripe	Wood apple
Grapes		
Jambu (white)		
Orange		
Lime sweet		
Litchi		
Mango		
Strawberry		
Watermelon		

Table 4: Potassium content of fruits

Potassium		
Low	**Moderate**	**High**
Apple	Apricort dried	Dates dry
Watermelon	Avocado	Tamrind pulp
Cherries red	Banana	Raisins
Grapes	Blackberry	Wood apple
Strawberry	Black currant	
Pineapple	Custard apple	
Lime sweet	Dates processed	
Mango	Fig	
Pear	Gooseberry	
Orange		

Majorly canned fruits contain high sugar syrup and preservatives which are high in sodium and potassium content. Sodium is not directly present in it but it is present in the form of sodium benzoate, which is also found in fruit juices.

For a diabetic patient juices are not advisable unless the patient is not in a state to eat fruit , which may be because of dental problem or mouth ulcers. Having fruit in the form of juice means consumption of concentrated fructose without getting the benefits of fibre and micronutrients. This in turn leads to a rise in blood sugar levels.

So, consuming fruits in diabetes is not wrong but making a correct choice is important!

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AIR TRAVEL AND INSULIN

*** Oshin Ambekar**

Travelling comes with fun and excitement but lets face the reality : for a person with diabetes, it also comes with the responsibilities of managing his/her diabetes during travel. People face difficulties while travelling with insulin and diabetes supplies. Hence, a few important precautions must be observed. It is better to inform airport security that you are travelling with insulin and needles. It is advisable to keep a letter by your doctor stating the same. Insulin and diabetes supplies should be kept in hand luggage because even if your luggage gets misplaced, you will at least have your diabetes supplies with you. Also, checked-in insulin gets frozen and loses its efficacy in the baggage hold.

Insulin should be kept in a well insulated container or airtight container if possible. It is very important to check the insulin prior to injecting. If there is any trace of crystals or cloudiness, it should be discarded and a new insulin vial or cartridge should be used.

While travelling it is important to have more frequent blood glucose checking. This is essential, so that hypoglycemia and hyperglycemia can be avoided by appropriate action.

How to keep insulin cold without a fridge while travelling?

There are commercially available bags (for eg. Frio bags) which can keep insulin cold while travelling.

Keeping insulin cold in the heat can be a challenge if you don't have access to a fridge, or freezer bag with ice packs, then Frio bag is going to be best option. Keeping your insulin cool in these bags is perfect for day trips, or if you're camping out for a night etc. It's always important to carry extra insulin with you in case of an emergency, but it's just as important to ensure that it is kept cool.

If you do not have accesses to Frio bag, or you simply can't afford one, then it is better to buy an cheap cooling bag (like a lunch box) and add ice cubes or keep it between cooling gel packs wrapped in a towel. This can also be used for a single day trip.

How to keep insulin cold while camping?

Camping weather can vary from being sunny, to windy, to cold too (may be snowy). Insulin stops working at a certain temperature and even freezes (mainly occurs at -4◦C).

How To Keep Insulin Cold When Flying?

As open vial of insulin can be kept at room temperature for 28 days, it can be carried as it is and also while flying, the temperature in the flight is fine for the insulin.

Travelling in very cold weather can be tricky with insulin, as cold weather can cause insulin to freeze and this is not good. Frozen insulin can not be used even after thawing as extreme cold conditions can denature insulin and such insulin can not be injected. It is better to keep insulin close to your body; for example inside the interior pocket of your jacket as the warmth of the body should be enough to prevent freezing.

While traveling with insulin in hot weather, be careful not to expose it to temperatures over 25°C or 77°F for a long time.

Keep your insulin in the shade wherever possible. Frio Duo Insulin Cooling case or cooling case can be used to keep insulin while travelling.

Insulin without refrigerator

According to diabetes drug manufacturers, open

* Dietician at Dr. Chandalia's Diabetes Endocrine Nutrition Management & Research Centre

insulin (that is, in use) can be kept out of the fridge for 28 days. But during this period, insulin vial should be checked for signs of denaturation (traces of crystals or cloudiness) prior to each injection. If your blood glucose levels are high consistently and if it does go down even after correction dose then this is also a sign that your insulin has denatured. If this happens, it is advisable to use a fresh new insulin vial from refrigerator.

Insulin can go bad, especially if exposed to high temperatures or direct sunlight.

While traveling with insulin, it should not be exposed to temperatures over 25°C or 77°F for a long time. Insulin should be kept in the shade wherever possible. If temperatures are to high then cooling bags must be used.

Insulin expiration

It is important to check the expiry date of insulin before using it. It gets even more important while travelling as well. Make sure all the insulin you're packing will be good for the whole length of your trip.

Cooling Bags for storing insulin while travelling:

- Dison- portable insulin cooler : This is a 2-8°C refrigerated box.
- DIY (Do It Yourself) Insulin cooling bag :

  Keep 2-3 ice gel packs in a insulated bag and keep the insulin vial in between these ice packs covered in towel to prevent it from direct cold (as it will freeze your insulin) This is one on the simplest way to make a cooler bag of your own.

QUESTION AND ANSWERS

What are the indications for doing a continuous monitoring of Blood glucose?

Continuous glucose monitoring is done by using a variety of sensors available for this purpose. They are called Continuous Glucose Monitoring systems (CGMS)

Although HbA1c test is a gold standard for assessing blood glucose control over the past 2-3 months, it is important to supplement it with either finger prick capillary blood sugar monitoring at home or by a CGMS. It is important to note that although HbA1c is a faithful reflection of the average blood sugar for the past 2-3 months, it dose not register the blood sugar fluctuations. It has been shown that very widely fluctuating blood sugars can show that HbA1c is at goal, like 6-7%. This occurs because very high peaks cancel out very low troughs while averaging. Hence, to understand the variability of blood glucose, CGMS can prove to be a very useful tool

While controlling diabetes initially there may be global hyperglycemia, which needs overall escalation of antidiabetic therapy. At this stage. CGMS is not required. However, when the HbA1c comes down to about 8%, we need to know which part of the day or night there is hyperglycemia and to also make sure if there are any episodes of asymptomatic hypoglycemia. In this situation, CGMS is a very effective tool. It gives deep insight into interaction between food, exercise and medications. In patients with variable daily routine and patients undertaking intensive exercises or a pregnant, type 1 diabetic will also benefit from CGMS. Patients on insulin pump need to do CGMS periodically to optmise their basal and bolus insulin doses on the pump. The new pumps are angmented for their capability to be linked to a dedicated CGMS and also have provision for hypoglycemia predication and suspension of infusion and restart at defined blood sugar levels.

CGMS is not indicated in emergent situations in diabetes because the readings they provide reflect glucose in the intestinal space and not blood stream and hence, do not provide accurate, timely and actionable information.

Hemraj B. Chandalia

What is the correct length of insulin needle?

The aim of the subcutaneous injection is to deliver medication directly into the subcutaneous tissue.

Insulin needle comes in varies sizes 4, 5, 6, and 8 mm and are of 32, 31, and 30 gauges. There are multiple factors that are considered while deciding the length of insulin needle namely, physiological, pharmacological and psychological. The shorter needles are long enough to pass through the skin into the fatty layer but are short enough not to reach the muscle tissue.

Needle length for children and extremely lean patient :

4 mm or 5 mm and skin fold technique with an angle of 45^{o} or 90^{o} for injection is recommended.

Needle length for adult :

For adult including obese patient- 4 mm or 5 mm for injection is recommended.

There is a myth that obese patient's skin is thicker than normal patient which is not true.

Adults do not require skin fold technique for 4 mm and 5 mm needle sizes. Shorter needle should be given at angle of 90^{o} to the skin surface.

In pregnancy, the injection site should selected on the lateral side of the abdomen.

If 8 mm needle size is available, skin fold technique with an angle of 45^{o} or 90^{o} is recommended. There is also a risk of intramuscular leakage of insulin while using 8 mm needle size.

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Shambhavi Mishra

Dose anaemia affect HbA1c estimation?

A diabetic who is anemic (Hb 9-10 gm %) presents some difficulties in the interpretation of HbA1c test. Hence it is important to consider effect of anaemia on HbA1c measurement. For evaluating HbA1c a fixed amount of haemoglobin lysate concentration is used, so that the same can be harvested in a patient of anaemia by extracting it from large amount of blood. Thus, using a constant amount of lysate Hb concentration obviates any error in HbA1c estimation due to anemia.

Iron deficiency anaemia is common in clinical practice. A stable anaemia due to iron deficiency does not alter results of HbA1c assay. However, when iron deficiency is treated with oral or intravenous iron, rapid erythropoiesis starts. This adds batches of young erythrocytes (RBC's) to the blood stream. When a blood sample is drawn, a larger portion of it is constituted by these young, recently added RBC's and these RBC's have not had the opportunity to witness and irreversibly combine with blood glucose. Thus, HbA1c assay in this situation produces a falsely low HbA1c value. Hence, a dynamic phase of anaemia where RBC'S are destroyed or being added at a faster rate than normal, produces lower HbA1c values. In contrast, stable anaemia where RBC's being formed and destroyed at a normal rate, i.e. when erythrokinetics and RBC lifespan is normal does not alter HbA1c estimation.

Certain form of hemoglobinopathies, which are often associated with anaemia also vitiate the HbA1c assay. This is due to two important factors: A change in erythrokinetics and in certain types of assay methods by altered ionic charge of the abnormal haemoglobin. The latter factor is usually not important in modern assay methods or is apparent as abnormal haemoglobin peak in a High Performance Liquid Chromatographic (HPLC) assay.

The RBC lifespan and rate of RBC formation is also altered in pregnancy and hence, normative data in pregnancy show a slightly lower values as compared to non-pregnant state.

Many hemoglobinopathies also produce hemolysis (destruction of RBC's), which also lowers the HbA1c values. By doing RBC lifespan studies in these subjects and correlating it with HbA1c values we had reported that degree of ongoing hemolysis can be predictably measured by serial HbA1c determinations.

Hemraj B. Chandalia

RECIPES

MOONG DAL CHILLA

Preparation Time: 40-50 minutes;

Cooking Time: 25-30 minutes;

Serves: 4 (2 chila each);

Ingredients:

- Split green gram yellow moong Dal: ½ cup;
- Ginger: 1 ½ inch piece;
- Garlic (roughly chopped): 5-6 cloves;
- Onion (roughly chopped): 1 medium;
- Green chilies (roughly chopped): 3;
- Red chili powder: ¼ teaspoon;
- Fenugreek powder: 1/8 tsp;
- Coriander and mint chutney: 3/4 cup;
- Skimmed milk cottage cheese (paneer): ¾ cup;
- Salt to taste;

Method:

- Soak moong dal in three cups of water for about half an hour. Drain and grind this with ginger, garlic, onion, green chilies and salt in to a smooth batter.
- Add red chili powder & fenugreek powder and mix well .
- Heat tawa and grease it .
- Spread a ladle full of batter to a thin disc. Drizzle a little oil and cook on medium heat till the underside is done .
- Carefully flip over, drizzle a little oil and cook till the other side is done too. Spread some coriander & mint chutney over the chila. Sprinkle paneer and fold the chila over to a half moon shape .

Nutritive value for 1 serving :

Energy (Kcals)	Protein (gms)	Carbohydrates (gms)	Fats (gms)	Glycine index
128	7.5	21	1.6	Low

Note:

- Rich in Potassium, Magnesium and Fiber, Which May Reduce Blood Pressure.
- Packed With Healthy Nutrients.
- May Lower "Bad" LDL Cholesterol Levels, Reducing Heart Disease Risk.

DALIA IDLI

Ingredients

- 1 cup- dalia (cracked wheat)
- 1/2 cup - suji (semolina)
- 1 cup - curd
- 2 pinch - of baking soda
- Adequate amount of water for batter
- Salt to taste
- Grated vegetable - capsicum, carrot, and peas, onion

Method:

1. Dry roast dalia. Let it cool.
2. In a bowl mix roasted dalia, suji, and curd
3. Add salt. Keep aside for 10 minutes.
4. Add grated veggies.
5. Adequate amount of water to get desired consistency of batter .
6. Add baking soda to the batter .
7. Steam idlis in pre- greased idli moulds
8. Enjoy with chutney of your choice.

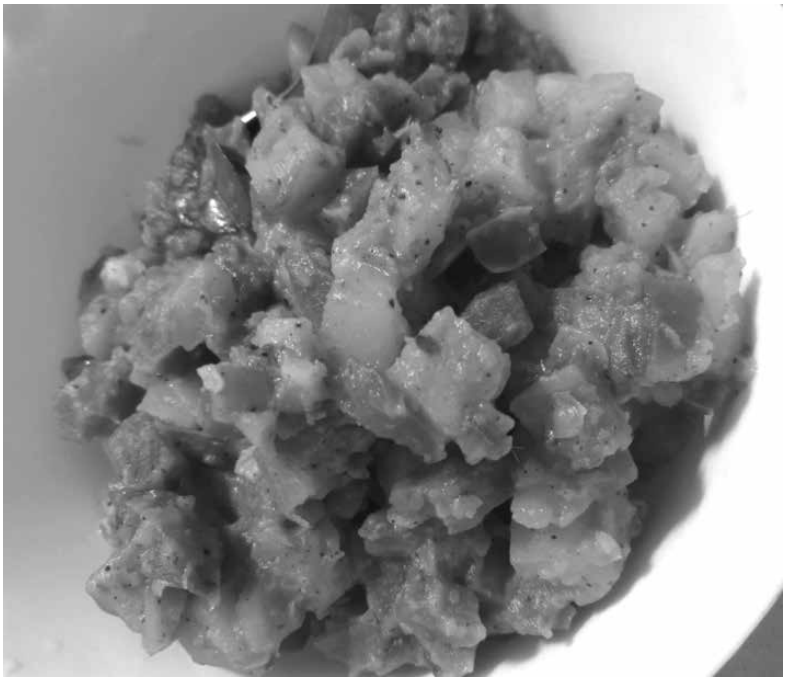
Nutritive value for 1 serving :

Energy (Kcals)	Protein (gms)	Carbohydrates (gms)	Fats (gms)	Glycine index
37	1	6	1	Low

Note:

- loaded with fiber – ¼ cup of dalia contains 5g of fiber
- No saturated fat
- Excellent source of minerals, vitamins

SAUTÉD VEGGIES WITH HUMMUS



Ingredients:

- Cumin seeds 1 tsp
- Curry leaves 5-6
- Onion (chopped) 25 g
- Sweet potato (cubed) 50 g
- Carrot (cubed) 50 g
- Capsicum 25 g
- Hummus 2 tbsp
- Black pepper as per taste
- Salt as per taste
- Lemon juice 1 tsp
- Water 1 cup

For hummus:

- Chick peas (soaked and boiled) 30 g
- Roasted cumin seed powder ½ tsp
- Lemon juice ½ tsp
- Salt as per taste
- Sugar 1 tsp
- Oil ½ tsp
- Water 1 tsp

Method:

For hummus

In a grinder add chick peas, salt, roasted cumin seed powder, sugar, lemon juice and water; grind into smooth paste. Add oil to this.

Sautéd veggies with hummus

- In a non-stick pan sauté cumin seeds, chopped onion and curry leaves. Add water to deglaze the pan.
- When the onion turns golden brown, add all the veggies and cook.
- Now add salt to taste, cook the veggies till they soften on medium flame. If veggies start to stick to the pan, add water.
- Now add hummus, black pepper. Cook for 2 mins.
- Add lemon juice after turning the heat off. Serve hot.

Serves: 1

Nutritive value of 1 serving:

Energy (Kcals)	Protein (g)	Carbohydrates (g)	Fats (g)	GI
220	7.1	43	3.5	Low

Note :

- It is rich in fiber and vitamins
- Can be consumed it as a healthy snack or as a light meal.

HOW KNOWLEDGEABLE ARE YOU?

1. How many islet autoantibodies at a minimum predict T1DM within 5 years follow-up ?
   a) 0
   b) 1
   c) 2
   d) 6 or more

2) Patients with diabetes secondary to chronic pancreatitis are less prone to develop which one of the following:
   a) Cardiovascular disease
   b) Nephropathy
   c) Neuropathy
   d) Retinopathy

3) The American Association of clinical Endocrinologists and American Diabetes Association (2009) recommended which target range for the management of inpatient hyperglycemia ?
   a) 75-110 mg/dL (4.1-6.1 mmol/L)
   b) 75-140 mg/dL (4.1-7.8 mmol/L)
   c) 110-140 mg/dL(6.1-7.8 mmol/L)
   d) 140-180 mg/dL (7.8-10.0 mmol/dL)

4) Which properties of food intake are major determinants of postprandial blood glucose concentrations in persons with diabetes ?
   a) Nature of protein and fat
   b) Content of sucrose
   c) Amount of monounsaturated fatty acids
   d) Content of carbohydrate and fibre

5) In people with type 2 diabetes hypoglycaemia can be caused by treatment with:
   a) Metformin
   b) Metformin plus glyburide
   c) Metformin plus sitagliptin

6) The rate of glucose utilization after an overweight fast in type 2 diabetes:
   a) Occurs mainly in skeletal muscle
   b) Is increased in the brain
   c) Is increased in proportion to hyperglycemia
   d) Increase in response to therapy

7) The ideal anti diabetic drug in a pregnant type 2 diabetic is
   a) Glibenclamide
   b) Metformin
   c) Human insulin short and intermediate acting
   d) Glargine insulin

8) Who is at high risk for developing gestational diabetes?
   a) Overweight prior pregnancy
   b) First time pregnancy
   c) Family History of diabetes
   d) Both 1 and 3

9) What affects Blood Sugar Levels ?
   a) Exercise
   b) Junk Food
   c) llness
   d) All the above

ANSWERS:

1) c 2) a 3) d
4) d 5) b 6) c
7) c 8) d 9) d

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?

Professionals working in the field of diabetes education, patients, relatives of patients and anyone else who is interested in diabetes.

How many issues are published in a year?

It is a quarterly magazine, having 4 issues in a year. Each issue offers delicious, diabetes-friendly recipes, weight-loss strategies, blood glucose monitoring tips, medication-information based on standards of medical care. It promotes a sense of confidence in our readers who want to take responsibility for their diabetes.

Kindly mail us on denmarc100@gmail.com or you can contact us at:
Kala Bhavan clinic- 02223633695/ 23634320

To subscribe, mail the following form with your cheque to: 18 Kala Bhavan, 3 Mathew Road, Mum-400004

HELP DEFEAT DIABETES TRUST

I am pleased to donate an amount of _____ to above trust, to be spent towards its objective of patient education.

I would like to be informed of these educational activities through the magazine Diabetes Today so that I can participate in furthering this cause (Rs. 600/- for 3 years, Rs. 500/- for 2 years and Rs. 250/- for 1 year).

Name: _____

Address:_____

_____

Phone: _____ Email ID: _____

Date: _____

Enclosed cheque/ Draft no. _____ of _____Bank

HELP DEFEAT DIABETES TRUST Announces

Reward of Rs. 10,000/- for securing highest marks

ELECTRONIC DIABETES EDUCATOR COURSE

Nature of Course: Virtual

Duration: 6 months

Course Highlights:

- Get certificate of training in diabetes
- Get practical exposure under a recognized mentor in your own town
- Get access to 800 pages of study material and more than 18 audio & audiovisuals.

Criteria for award:

- To complete the course in given time frame i.e. 6 months.
- To secure highest marks in the current year.

For further details visit helpdefeatdiabetes.org

CERTIFIED DIABETES EDUCATOR COURSE

Dr Chandalia's DENMARC in association with Help Defeat Diabetes Trust (HDDT) presents to you a course to be a Certified Diabetes Educator (CDE)!

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?

All course material is available online on our website.

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.

MEMBERSHIP FORM

Association of Diabetes Educators (ADE)

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

Name ……..……..

Address ……..……

…… Date of Birth: ……

Telephone: Res: ….....……. Office: ……..... Cell: ……

E-mail id: ….....……..

Educational Qualifications:.....……..……

……

……

Work Experience: ….....……

……

……

Currently employed at: ……

……

Certificates attached regarding educational qualification and work experience:

……

₹ 2000/- is payable in cash / cheque / draft with the application form

Add ₹ 100/- for outstation cheques

Cheque Drawn in favour of: Association of Diabetes Educators

Payment Details: Cheque No./Draft No. _____ Dated _____

Bank _____ Branch _____

……..……

Signature

Invitation to write in the

JOURNAL OF DIABETES EDUCATION

Be a lifelong student

The more you teach, the more you learn and more self confidence you have!!!

Journal of Diabetes Education is the quarterly educational journal of the Association of Diabetes Education. It is currently printed and distributed to a readership of 1500 diabetes educators, diabetologists, nutritionists and pharmacists.

Each issue features some selected topics, in addition to regular columns like Questions and Answers, Recipes and MCQs.

GUIDELINES FOR CONTRIBUTORS:

Editor-in-chief welcomes contributions for future issues. The article will be published if found suitable by the Editors.

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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Reference style:

Please do not cite references in the text. About 5-15 key references at the end of article are needed. Use Vancouver style of references.

CHALLENGES IN DIABETES EDUCATION

AN AWARD FOR PROBLEM RESOLUTION IN DIABETES EDUCATION

SPONSORED BY DR. CHANDALIA'S DIABETES ENDOCRINE NUTRITION MANAGEMENT & RESEARCH CENTRE

Prize money of Rs. 10,000 for reporting a problem case

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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Introducing

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insulin glargine 300U/mL

The Next Generation Insulin Glargine

- **More stable and prolonged** activity profile, with less glycemic variability[2]
- Predictable and sustained HbA1c control from a once daily injection[4]
- Toujeo™ addresses the worry of insulin-related body weight gain[1]
- **Lower risk of hypoglycaemia*** including during the titration phase, in people with T2DM[1]
- The advantage of **dosing flexibility** (±3 hours)when needed[2,3]

* Confirmed ≤3.9 mmol/L (≤70 mg/dL) or severe hypoglycaemic events (24 hours). ^ Better glycaemic control and less hypoglycaemia with insulin glargine 300 U/mL vs glargine 100 U/Ml. Ritzel R et al. Diabetes Obes Metab. 2017 Sep 1. (Epub ahead of print) 1. Bolli GB, et al. Diabetes Obes and Metab. 2015;17(4):386–394. 2. Becker RH, et al. Diabetes Care. 2015;38:637-643. 3. Toujeo™ prescribing information 4. Strong J et al. Curr Med Res Opin.2017 Apr;33(4):785-793

INSULIN GLARGINE INJECTION
TOUJEO™ Solostar® **Abridged Prescribing Information**
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 unit-to-unit based on the previous basal insulin dose. Changing from twice-daily basal insulin products to once-daily Toujeo™ , the recommended initial Toujeo™ dose is 80% of the total daily dose of the basal insulin that is being discontinued. Toujeo™ must not be mixed with any other insulin products. Toujeo™ must not be diluted. The safety and effectiveness of Toujeo™ has not been established in paediatric patients (under 18 years of age). Toujeo™ can be used in elderly patients, in patients with renal impairment and in patients with hepatic impairment. Close glucose monitoring is recommended. **SAFETY-RELATED INFORMATION Contraindications:**Toujeo™ 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 hypo and hyperglycaemia 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 Toujeo™ and other insulins. The patients must also be instructed to never use a syringe to remove Toujeo™ 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
For full prescribing information please write to Sanofi India Ltd., Sanofi House, CT Survey No 117-B, L&T Business Park, Saki Vihar Road, Powai, Mumbai 400072
Dated: June 2017 **Source:** CCDS Version 1.1 dated June 2016

For the use of a registered medical practitioner or a hospital or a laboratory only.

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Significantly superior start[1]

Preferred choice for intensification[2]

Convenience of a single pen[1]

NO COMPROMISE RYZODEG™ START

Abbreviated Prescribing Information: Insulin degludec/insulin aspart **Ryzodeg™ FlexTouch®:** Consult Pack Insert before prescribing. Ryzodeg™ (insulin degludec/insulin aspart) 100 units/mL insulin solution for subcutaneous injection in a pre-filled pen (FlexTouch®). **Presentation:** Ryzodeg™ FlexTouch®. 1mL solution contains 100 units insulin degludec/insulinaspart in the ratio 70/30 (equivalent to 2.56 mg insulin degludec and 1.05 mg insulin aspart). One pre-filled device contains 300 units of Ryzodeg™ in 3 mL solution. **Indications:** Treatment of diabetes mellitus in adults. **Posology and administration:** Ryzodeg™ can be administered once- or twice-daily with the main meal(s). In patients with type 2 diabetes mellitus, Ryzodeg™ can be administered alone, in combination with oral anti-diabetic medicinal products, and in combination with bolus insulin. In type 1 diabetes mellitus, Ryzodeg™ is combined with short-/rapid-acting insulin at the remaining meals. Administration by subcutaneous injection only. Ryzodeg™ should be dosed in accordance with individual patient needs. Dose adjustments are recommended to be primarily based on FPG measurements. Ryzodeg™ allows for flexibility in the timing of insulin administration as long as it is dosed with the main meal(s). In older patients and patients with renal and/or hepatic impairment, glucose-monitoring should be intensified and the insulin dose adjusted on an individual basis. The safety and efficacy of Ryzodeg™ in children and adolescents below 18 years of age have not been established. Ryzodeg™ comes in a pre-filled pen (FlexTouch®) designed to be used with NovoFine® injection needles. The prefilled pen delivers 1–80 units in steps of 1 unit. **Contraindications:** Hypersensitivity to the active substances or any of the excipients. **Special warnings and precautions:** Too high insulin dose, omission of a meal or unplanned strenuous physical exercise may lead to hypoglycaemia. Inadequate dosing and/or discontinuation of treatment in patients requiring insulin may lead to hyperglycaemia and potentially to diabetic ketoacidosis. Concomitant illness, especially infections, may lead to hyperglycaemia and thereby cause an increased insulin requirement. When using insulin in combination with pioglitazone, patients should be observed for signs and symptoms of heart failure, weight gain and oedema. Pioglitazone should be discontinued if any deterioration in cardiac symptoms occurs. Hypoglycaemia may constitute a risk when driving or operating machinery. **Pregnancy and lactation:** There is no clinical experience with use of Ryzodeg™ in pregnant women or in those who are breastfeeding. Undesirable effects: Refer to pack insert for complete information on side effects. Very common (≥1/10); common (≥1/100 to < 1/10); uncommon (≥1/1.000 to < 1/100); rare (≥ 1/10.000 to < 1/1.000); very rare(< 1/10.000); not known (cannot be estimated from the available data). Very common: Hypoglycaemia. Common: Injection site reactions. Not known: Lipodystrophy. Uncommon: Peripheral oedema and rare: Hypersensitivity and urticaria. With insulin preparations, allergic reactions may occur; immediate-type allergic reactions may potentially be life threatening. Injection site reactions are usually mild, transitory and normally disappear during continued treatment. **Manufactured by**: Novo Nordisk A/S, Novo Alle, DK-2880 Bagsvaerd, Denmark. **Imported by:** Novo Nordisk India Private Limited, Plot No. 32, 47 - 50,EPIP Area, White field, Bangalore - 560066. For the use only of registered medical practitioner or a hospital or a laboratory. Ryzodeg™, FlexTouch® and NovoFine® are trademarks owned by Novo Nordisk A/S,Denmark. Please refer latest pack insert for more details.

References: 1. Onishi Y, Ono Y, Rabol R, Endahl L, Nakamura S. Superior glycaemic control with once-daily insulin degludec/insulin aspart versus insulin glargine in Japanese adults with type 2 diabetes inadequately controlled with oral drugs: a randomized, controlled phase 3 trial. *Diabetes Obes Metab*. 2013;15(9):826–832. **2.** Rodbard HW, Cariou B, Pieber TR, *et al.* Treatment intensification with an insulin degludec (IDeg)/insulinaspart (IAsp) co-formulation twice daily compared with basal IDeg and prandial IAsp in type 2 diabetes: a randomized, controlled phase III trial. *Diabetes Obes Metab* 2016;18:274-80.

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