

T1DM

Patient Guide Handbook

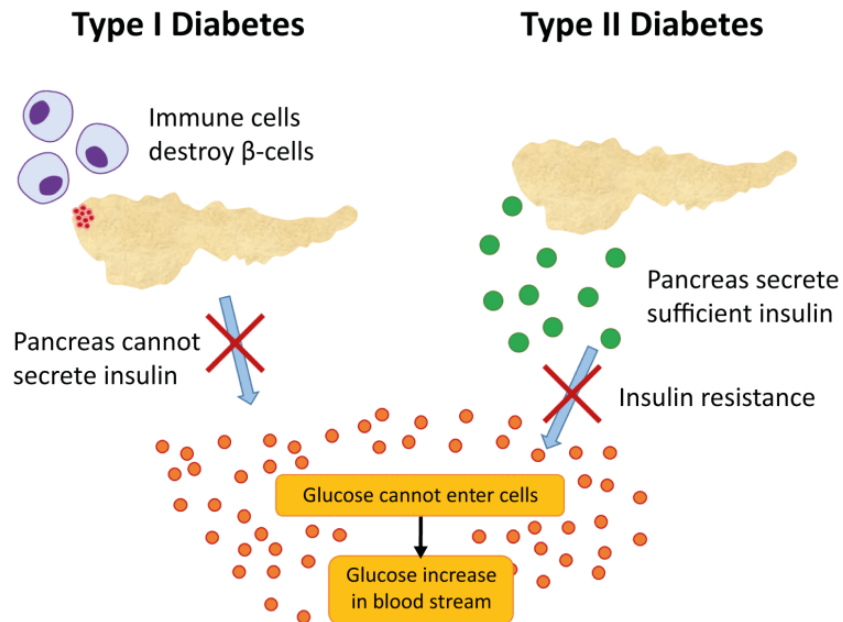
Dr. Shreya Sharma

MD, DM Endocrinology (AIIMS, New Delhi)

Fellowship in Pediatric Endocrinology (BJWHC, Mumbai)

WHAT IS DIABETES?

CONDITION WHEN BODY DOES NOT PRODUCE INSULIN OR INSULIN IS NOT ABLE TO ACT TO NORMALIZE BLOOD GLUCOSE LEVELS.



TYPE 1 DIABETES IS THE MOST COMMON DIABETES IN CHILDREN. IT IS A LIFELONG CONDITION THAT IS TREATED WITH INSULIN.

BETTER CONTROL OF DIABETES

Target blood sugar:

For toddlers: 100-200

For older children: 80-180

Sugar balance in the body- following 4 supports are important :



DIABETES KIT

MATERIALS NEEDED FOR BLOOD GLUCOSE TESTING:

1. SPIRIT SWAB
2. GLUCOMETER (EXTRA BATTERY)
3. LANCET/PRICKING DEVICE AVAILABLE WITH GLUCOMETER WITH EXTRA NEEDLES.
4. COTTON

FOR INJECTION:

1. INSULIN VIALS/ PEN (EXTRA VIALS/CARTRIDGE FOR DISTANT TRAVEL)
2. INSULIN SYRINGES
3. EXTRA NEEDLES FOR INSULIN PEN
4. SPIRIT SWAB
5. COTTON
6. ICE PACK

FOR TACKLING HYPOGLYCEMIA:

1. GLUCON D/ POWDERED SUGAR PACKETS
2. SPOON , GLASS, WATER
3. SNACK (CARBOHYDRATE RICH *example: idli/upma/poha/paratha*)
4. GLUCAGON INJECTION
5. 1CC TUBERCULIN SYRINGE WITH TWO NEEDLES
6. SPIRIT SWAB
7. COTTON
8. IDENTITY CARD WITH SPECIAL INSTRUCTION AND CONTACT DETAILS

SICK DAY

1. URINE KETOSTIX
2. SICK DAY DIARY

MONITORING BG

1. SMBG RECORD BOOK
2. PEN

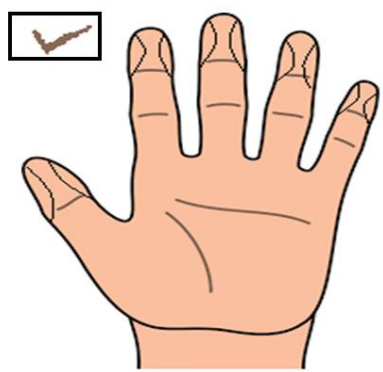
INSTRUCTIONS FOR CHECKING BLOOD GLUCOSE

PRECAUTIONS:

1. CHECK THE EXPIRY DATE ON THE STRIPS BEFORE PURCHASE
2. STORE STRIPS IN A COOL AREA AWAY FROM SUNLIGHT
3. WHILE REMOVING THE STRIPS FROM THE BOTTLE DO NOT TOUCH THE TEST AREA.
4. REPLACE THE CAP IMMEDIATELY AFTER REMOVING THE STRIP
5. WRITE OPENING DATE ON THE BOTTLE

STEPS

1. WASH HANDS WITH SOAP AND WATER
2. WARM YOUR FINGER BY RUBBING YOUR HANDS TOGETHER
3. SELECT THE AREA TO BE PRICKED (ALONG THE NAIL BED NOT THE PULP OF THE FINGER)
4. INCREASE THE BLOOD FLOW BY MILKING THE FINGER WITH THE HAND LEVEL BELOW THE LEVEL OF THE HEART.
5. TIGHTEN THE SKIN SO THAT PRICKING IS EASY.
6. CLEAN SITE WITH SPIRIT, LET IT DRY.
7. SITE ONCE CLEANED WITH SPIRIT SHOULDNT BE TOUCHED
8. WIPE THE FIRST DROP OF BLOOD; USE THE SECOND DROP TO TEST BG, RECORD THE READING.
9. DAB THE PRICKED AREA WITH COTTON AND WIPE IT CLEAN
10. DO NOT TOUCH THE NEEDLE OF THE LANCET OR PRICKING DEVICE.
11. DISCARD THE STAINED STRIP, SOILED COTTON AND LANCET APPROPRIATELY
 - a. CHANGE THE NEEDLE OF THE PRICKING DEVICE EVERY 4TH DAY.



SELF MONITORING OF BLOOD GLUCOSE

1. TO RECORD MEASURED BLOOD GLUCOSE PREMEALS DAILY AND MAINTAIN A RECORD AS FOLLOWS

DATE	BEFORE BREAKFAST	BEFORE LUNCH	BEFORE DINNER	BED TIME	2AM
18/02/2017	250	172	120	148	186

2. CARRY THIS RECORD BOOK ALWAYS WITH YOU, WHILE DISTANT TRAVEL.
3. DO NOT FORGET TO BRING THE RECORD BOOK FOR OPD VISITS.
4. DO NOT SKIP RECORDING THE BG; IT SPEAKS MUCH MORE THAN ONE TIME BLOOD TESTS.

INSULIN INJECTION TECHNIQUE

CLEAN THE SITE:

1. USE SPIRIT SWAB AND CLEAN THE INJECTION SITE
2. SPIRIT MUST BE ALLOWED TO DRY BEFORE ANY PRICKING OR INJECTION.
(AREA WET WITH SPIRIT WILL LEAD TO PAINFUL INJECTION)
3. DO NOT CLEAN THE NEEDLE WITH SPIRIT

TYPE OF SYRINGE: COMMONLY USED IS THE RED CAP INSULIN SYRINGE, IT IS U-40 STRENGTH.

PRECAUTIONS:

1. PERSON GIVING THE INJECTION MUST WASH HANDS CLEAN WITH SOAP AND WATER/ CLEAN HANDS WITH STERILUM.
2. RECAP THE INSULIN SYRINGE AFTER USE.
3. DO NOT CLEAN THE NEEDLE WITH SPIRIT.
4. DISCARD THE SYRINGE EVERY 4TH DAY.
5. FOR THOSE USING INSULIN PENS, CHANGE THE NEEDLES EVERY 4TH DAY.
6. STORE THE SYRINGE IN THE DOOR OF THE REFRIGERATOR TILL THE NEEDLE REMAINS SHARP.
7. CHECK THE EXPIRY DATES ON THE INSULIN VIALS/ CARTRIDGE BEFORE PURCHASE.
8. STORE THE VIALS IN THE DOOR OF THE FRIDGE.
9. SYRINGE AND THE INSULIN SHOULD BE OF THE SAME STRENGTH.
10. THE RUBBER OF THE STOPPER OF THE VIALS IS THINNER IN THE CENTRAL AREA SO THE NEEDLE SHOULD BE INSERTED THROUGH THE CENTER.
11. INJECT EQUIVALENT AMOUNT OF AIR IN THE VIAL BEFORE DRAWING INSULIN IN THE SYRINGE.
12. ALWAYS REGULAR INSULIN (CLEAR) IS TO BE DRAWN FIRST IN THE SYRINGE THEN INSULATARD (MILKY).
13. CORRECT DOSE OF INSULIN AS ADVISED BY THE DOCTOR SHOULD BE DRAWN IN THE SYRINGE/ SET ON THE INSULIN PEN.

TIME:

1. FOR REGULAR INSULIN: 30 MINUTES BEFORE MEAL TIME. THIS TIME GAP IS ESSENTIAL FOR THE INSULIN TO START ACTING IN YOUR BODY.
2. FOR LANTUS: A FIXED PREDECIDED TIME EVERY DAY. DO NOT MIX LANTUS WITH OTHER INSULINS. IT SHOULD BE TAKEN SEPARATELY.

STEPS:

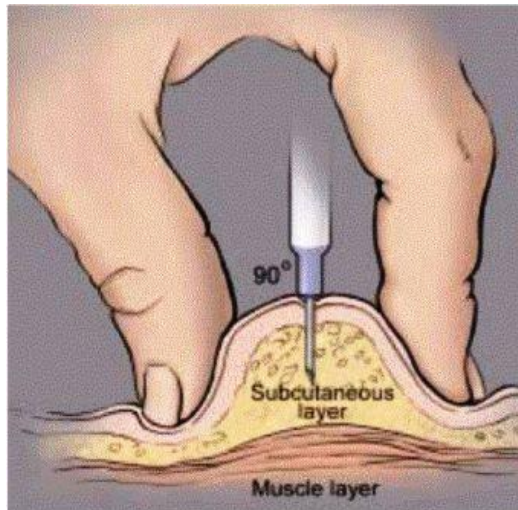
1. INSULIN MUST BE KEPT OUT OF THE REFRIGERATOR HALF AN HOUR PRIOR TO ADMINISTRATION. THIS HELPS TO BRING IT TO ROOM TEMPERATURE.
2. ROLL THE BOTTLE OF INSULATARD (N or MILKY) TO MAKE IT A HOMOGENOUS MIXTURE. TURN IT ONCE GENTLY AND THEN ROLL THE BOTTLE BETWEEN THE PALMS GENTLY. THIS MIXES THE INSULIN AND HELPS TO BRING IT TO ROOM TEMPERATURE.
3. INSERT AIR INTO THE VIALS. (SAME AMOUNT AS MUCH INSULIN YOU NEED TO DRAW). THIS WILL HELP TO BALANCE PRESSURE IN THE VIALS. EXAMPLE IF YOUR DOSE IS 5 UNITS OF ACTRAPID AND 6 UNITS OF INSULATARD SO YOU WILL PUSH IN 5 UNITS OF AIR IN THE ACTRAPID VIAL AND 6 UNITS AIR IN THE INSULATARD VIAL BEFORE DRAWING THE INSULIN.
4. ALWAYS DRAW INSULIN FROM THE ACTRAPID VIAL FIRST TO AVOID MIXING OF MILKY WITH THE PLAIN INSULIN. ENTRY OF MILKY IN THE PLAIN INSULIN SPOILS THE PLAIN INSULIN.
5. AFTER YOU HAVE DRAWN THE REQUIRED DOSE OF REGULAR OR PLAIN INSULIN, DRAW THE REQUIRED DOSE OF INSULATARD OR MILKY INSULIN INTO THE SYRINGE.
6. TAP THE SYRINGE GENTLY BUT FIRMLY FOR ANY AIR BUBBLES.
7. WITH YOUR LEFT HAND TAKE A PINCH ON THE CLEANED AREA WHERE INSULIN HAS TO BE GIVEN, TO LIFT UP THE SUBCUTANEOUS FAT, AND INSERT THE NEEDLE OF THE INSULIN SYRINGE PERPENDICULAR (STRAIGHT) INTO THE AREA.
8. THE ANGLE OF THE PRICK SHOULD BE 90 DEGREE
9. SLOWLY RELEASE THE PINCH AND COUNT 10, THEN SLOWLY REMOVE THE NEEDLE.
10. 30 MINS LATER YOU ARE READY FOR A MEAL.

REDUCING PAINFUL PRICKS:

1. DO NOT CLEAN THE NEEDLE WITH SPIRIT.
2. CHANGE NEEDLES EVERY 4TH DAY.
3. WAIT FOR THE SPIRIT OR ALCOHOL TO DRY ON THE SKIN BEFORE YOU PICK FOR GIVING INSULIN.
4. TAKE OUT INSULIN VIALS / PENS FROM THE FRIDGE ½ HOUR PRIOR TO ADMINISTERING, TO BRING THEM TO ROOM TEMPERATURE.

FOR INSULIN PEN:

1. PROCEDURE REMAINS THE SAME
2. JUST BE SURE OF THE DOSE WHILE DIALING THE PEN, AND INJECT TILL YOU GET BACK TO ZERO ON THE DIAL.
3. BEFORE ADMINISTERING, BE SURE THAT THERE IS NO AIR IN THE CARTRIDGE, IN THAT CASE YOU SHOULD REMOVE THAT AIR BY DIALING 8-10 UNITS AND CLICKING IN AIR, TILL SOME INSULIN ALSO COMES OUT.
4. KEEP THE PEN LABELLED SEPEARTELY AS ACTRAPID AND LANTUS IN CASE THEY ARE OF THE SAME COLOUR.



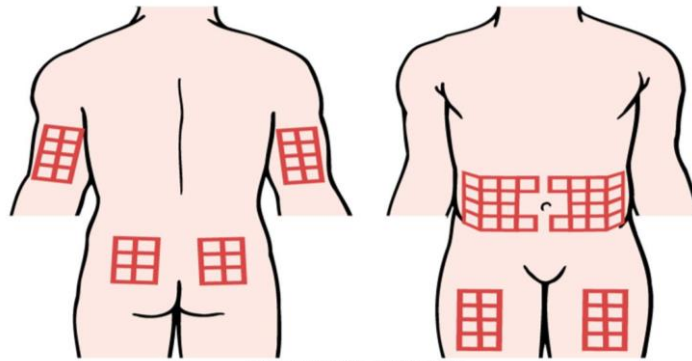
DISCARD NEEDLES: KEEP THEM IN A HARD PLASTIC BOX, AND TAKE THEM TO NEAR BY HOSPITAL OR CLINIC TO DISCARD THEM IN THE CONTAINER FOR SHARPS AFTER DISCUSSING WITH THE ON DUTY SISTER INCHARGE.

DO NOT DISCARD NEEDLES AT HOME IN THE DUSTBINS.

INSULIN INJECTION SITES:

1. FRONT AND OUTER AREAS OF THIGH
2. ABDOMEN
3. BUTTOCKS
4. LATERAL ASPECT OF ARMS

Subcutaneous Injection Sites



IMPORTANCE OF INJECTION SITES:

1. THIS IS THE AREA WHERE INSULIN IS INJECTED AND GETS ABSORBED INTO THE BODY, IMPROPER TECHNIQUES CAN CAUSE
2. PAIN AT INJECTION SITE
3. ERRATIC ABSORPTION OF THE INSULIN THUS ERRATIC SUGARS.
4. LIPOHYPERTROPHY

RULES:

1. NEVER INJECT AT THE SAME AREA TOO OFTEN.
2. ROTATE UNIFORMLY/SYSTEMATICALLY THE SITE OF INJECTION.
3. KEEP A DISTANCE OF AT LEAST TWO FINGERS OF THE CHILD FINGER SIZE BETWEEN TWO INJECTION SITES.

THIGHS:

THE AREA CAN BE DEFINED AS A RECTANGLE:

1. UPPER BORDER; 4 FINGERS BELOW THE GROIN
2. LOWER BORDER; 4 FINGERS ABOVE THE KNEE JOINT
3. OUTER BORDER ; GROOVE THAT IS FELT ON THE OUTER ASPECT OF THE THIGH
4. INNER BORDER; LINE RUNNING THROUGH THE MIDDLE OF THE THIGH.

START FROM ONE CORNER AND PROCEED EVERYDAY WITH A GAP OF TWO FINGERS FROM THE SITE OF LAST INJECTION. TIME OF ABSORPTION IS 20-30 MINS.

ABDOMEN:

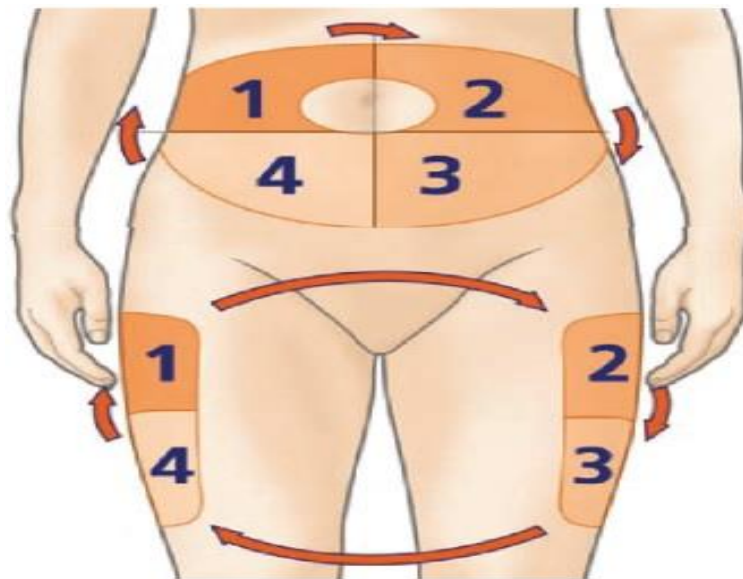
THE AREA CAN BE DEFINED AS TWO RECTANGLES FORMED ON EITHER SIDES OF THE NAVEL WITH THE FOLLOWING BORDERS:

1. UPPERBORDER: TWO FINGERS BELOW THE RIB
2. LOWER BORDER: TWO FINGERS ABOVE THE GROIN FOLD
3. INNER BORDER: TWO FINGERS AWAY FROM THE UMBILICUS
4. OUTER BORDER: OUTER BORDER OF THE ABDOMEN

LIPOHYPERTROPHY:

1. THIS IS A SWELLING FORMED BY ACCUMULATION OF FAT AT THE INJECTION SITE DUE TO REPEATED INJECTIONS INTO THE SAME AREA AND IMPROPER SITE ROTATION.
2. THIS CAN CAUSE DELAYED AND ERRATIC ABSORPTION.
3. COSMETICALLY DOESN'T LOOK GOOD.
4. IT CAN TAKE MORE THAN SIX MONTHS TO DISAPPEAR EVEN WITH CORRECTIVE MEASURES MADE IN THE TECHNIQUE.

INSULIN INJECTION SITE ROTATION



STORAGE OF INSULIN VIALS:

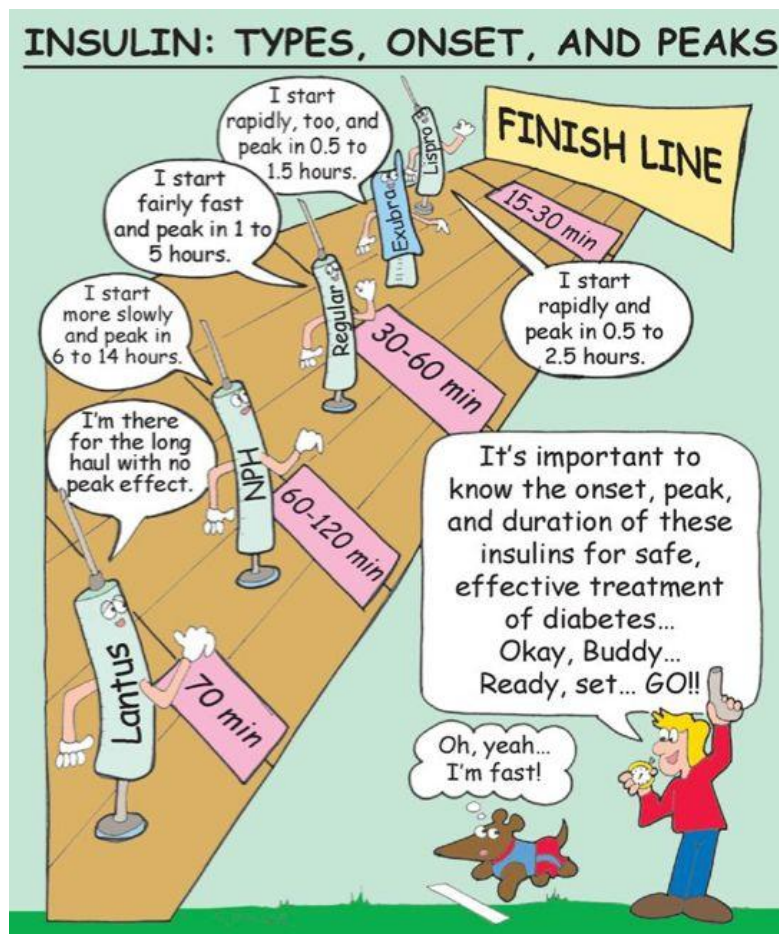
1. STORE THEM IN FRIDGE DOOR AT 2-8 DEGREE C.
2. EVEN AFTER ELECTRICITY SUPPLY IS SHUT, FOR 6-8 HOURS INSULIN CAN BE STORED IN THE FRIDGE AS THE TEMPERATURE REMAINS COOL.
3. IN CASE OF ELECTRICITY SUPPLY SHUT OUT FOR LONGER DURATION, TEMPORARY STORAGE IN A THERMOS WITH 4-5 ICE CUBES HALF FILLED WITH WATER, CAN BE DONE. WRAP THE INSULIN VIALS/PENS IN POLYETHYLENE BAG TO AVOID THEM BEING WET. CHANGE THE ICE CUBES AFTER 6-8 HRS.

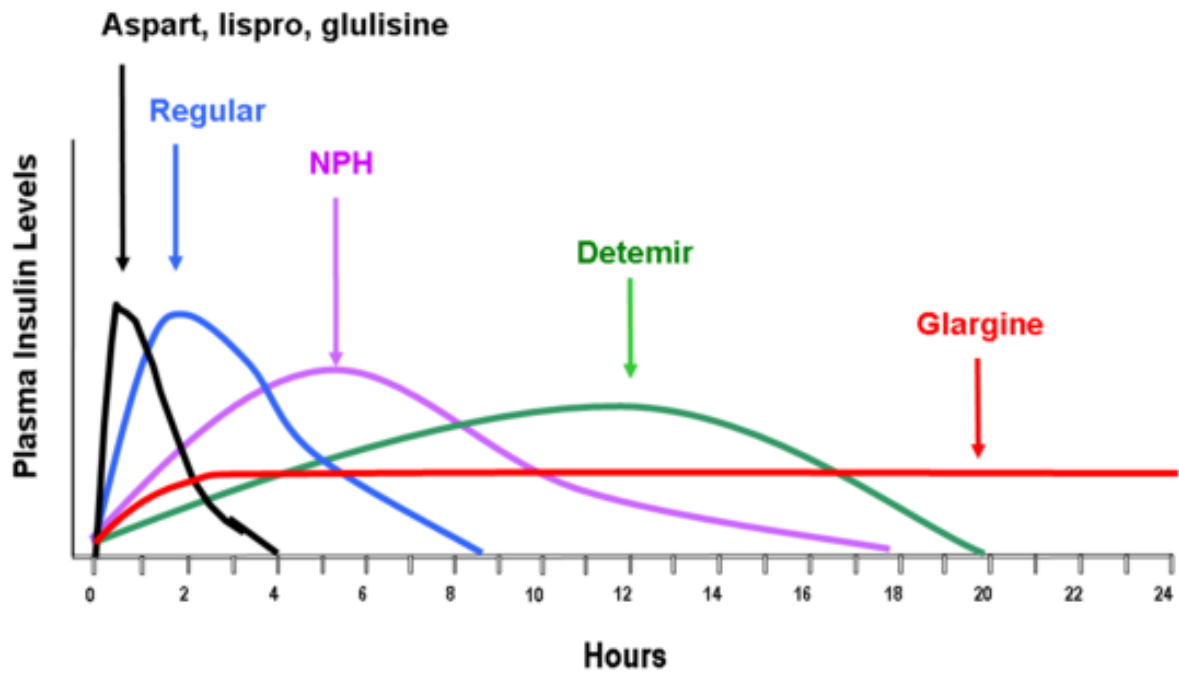
4. IN CASE OF UNAVAILABILITY OF A FRIDGE INSULIN CAN BE STORED, WRAPPED IN A POLYTHELENE BAG, IN AN EARTHEN POT HALF FILLED WITH COOL WATER AND COVERED AND KEPT IN A COOL AREA OF THE HOUSE.
5. FOR SHORT TRAVELS/ OPD VISITS ALWAYS CARRY INSULIN IN AN ICE PACK/ THERMOS WITH ICE CUBES AND WATER.

DISCARD THE VIALS AFTER 1 MONTH FROM THE OPENING DATE AS THE POTENCY OF THE INSULIN DECREASES. USE NEW VIALS AFTER A MONTH. IT'S GOOD TO MENTION THE OPENING DATE ON THE VIALS FOR THE SAME REASON.

TYPES OF INSULIN

	ONSET	PEAK	DURATION
Rapid acting <i>(Lispro)</i>	15 minutes	60-90 minutes	3-4 hours
Short acting <i>(Regular – Humulin, Novolin)</i>	30 minutes - 1 hour	2-3 hours	3-6 hours
Intermediate <i>(NPH)</i>	2-4 hours	4-10 hours	10-16 hours
Long acting <i>(Lantus/glargine)</i>	1-2 hours	No peak	24+ hours





Must always

Check blood glucose before deciding short acting insulin dose

Must never

Miss insulin
 Take extra insulin while consulting doctor
 Do self adjustment of long acting insulin
 Take more than 1-2 units of short acting insulin to cover consumption of sweets, cakes etc

SICK DAY CARE:

1. CHECK BLOOD SUGAR EVERY 2-4 HOURS. MAINTAIN A SICK DAY RECORD.
2. CHECK URINE KETONES IN EACH VOID. IF MODERATE (3+) OR HIGH (4+) IMMEDIATELY CALL THE DOCTOR.
3. TREATMENT OF THE UNDERLYING CONDITION IS VERY ESSENTIAL HENCE MEETING THE TREATING PHYSICIAN AND TAKING MEDICATIONS NECESSARY TO TREAT THE UNDERLYING ILLNESS IS A MUST.
4. IN CASE OF POOR APPETITE/ VOMITTING/DIARRHOEA, LIQUID DIET SUCH AS (SUGAR + SALT CONTAINING LIQUIDS), CHICKEN SOUP, CLEAR BROTHS, BUTTER MILK, LEMON JUICE, RICE KANJI, CORN SOUP, PEDIATRIC ELECTROLYTE MIXES, SHOULD BE TAKEN AT 2-3 HOURS INTERVAL, TO MAINTAIN THE HYDRATION STATUS.
5. **DO NOT STOP INSULIN ON A SICK DAY. SICKNESS IS A STRESSFUL SITUATION AND THE BODY NEEDS OF INSULIN INCREASE DURING SICKNESS.**
6. EXTRA INSULIN MAY BE NEEDED TO BE GIVEN ON SICK DAYS AS PER THE BLOOD GLUCOSE AND THE URINE KETONES.
7. TOTAL DAILY DOSE (TDD) IS CALCULATED AS SUM OF DOSES OF ACTRAPID AND LANTUS/INSULATARD IN THE DAY. EXAMPLE IF THE CHILD IS ON R3----R4-----R4 AND L10, THEN TDD IS 3+4+4+10=21

BLOOD GLUCOSE	URINE KETONES	ACTION	SPECIAL DIET
<80 AND POOR INTAKE	1+/2+	OMIT THE ACTRAPID CONTINUE THE SAME LANTUS/NPH	EXTRA CARBS AND FLUIDS NEEDED
<80 AND POOR INTAKE	3+/4+	OMIT THE ACTRAPID, DOSE REDUCTION IN LANTUS (BY 20%)	EXTRA CARBS AND FLUIDS NEEDED

BLOOD GLUCOSE	<180	180-250	250-400
URINE KETONES			
-	---	R - 5%	R 10%
1+/2+	R 0-5%	R 10%	R 15%
3+/4+	R 5-10%	R 15%	R 20%

- If BLOOD GLUCOSE IS BETWEEN 80-180 AND URINE KETONES ARE 1+----4+ WHAT TO DO?

TO TAKE THE NORMAL DOSE OF INSULIN,

BG	
<180	Salty liquids eg. Lemon juice, buttermilk
>180	Sugar+Salt containing liquids

- AFTER TAKING THE ABOVE ACTION RECHECK BG AND URINE KETONES IN 2-4 HOURS AND AGAIN REFER TO THE TABLE ABOVE AND TAKE ACTION AS STATED ABOVE.
- IF AFTER 12 HOURS BG IS NORMAL AND URINE KETONES ARE NEGATIVE: TAKE THE NORMAL DOSE OF INSULIN FOLLOWED BY NORMAL DIET AND LOTS OF WATER.
- **IF EXTRA INSULIN IS REQUIRED 3 TIMES DURING THE DAY OVER 12 HOURS AND STILL KETONES ARE PRESENT OR INCREASING AND / OR 2-3 VOMITTING AND/OR FAST BREATHING AND/OR STOMACH ACHE AND/OR DROWSINESS THEN IMMEDIATE HOSPITALISATION IS A MUST.**

DOSES AS PER YOUR CHILDS TDD WILL BE ADVISED TO YOU AT THE TIME OF DISCHARGE. YET IT IS ADVISABLE TO CONTACT THE DIABETES CARE TEAM DOCTORS WHOSE NUMBERS ARE PROVIDED TO YOU, IN CASE OF SICKNESS, FOR CORRECT ASSISSTANCE.

HYPOGLYCEMIA MANAGEMENT:

<70

HYPOGLYCEMIA IS BLOOD GLUCOSE LEVEL LESS THAN 70 AND THE RESULTANT SYMPTOMS.

REASONS FOR HYPOGLYCEMIA:

1. HIGHER INSULIN DOSE THAN REQUIRED.
2. LOWER FOOD INTAKE THAN USUAL.
3. DELAY OF THE MEAL
4. UNUSUALLY EXCESS EXERCISE WITHOUT PRIOR SNACKS
5. GASTROINTESTINAL INFECTION, VOMITTING WITH DIARRHOEA, POOR INTAKE

SYMPTOMS OF HYPOGLYCEMIA:

MILD:

1. EXCESS HUNGER
2. SHAKINESS
3. POUNDING HEART BEAT
4. HEADACHE
5. ANXIETY
6. TINGLING NUMBNESS
7. LETHARGY

MODERATE:

1. SUDDEN BEHAVIOURAL CHANGE
2. MENTAL CONFUSION
3. IRRITABLE AND ANGRY BEHAVIOUR
4. LOSS OF CONCENTRATION
5. EXCESSIVE DROWSINESS

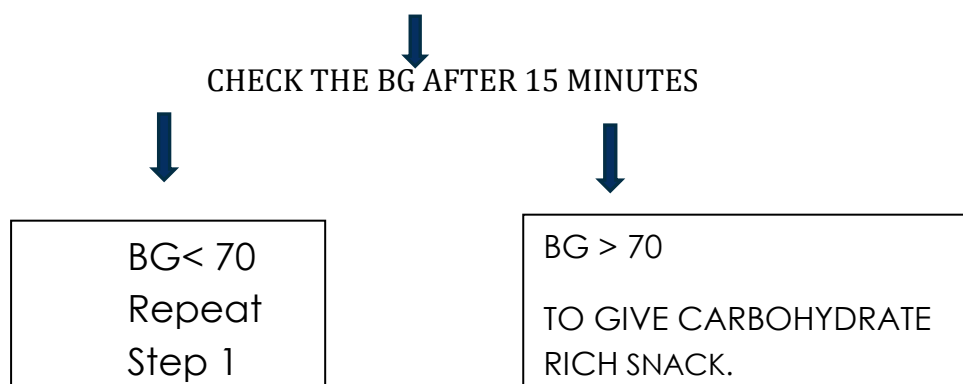
SEVERE:

1. UNCONSCIOUS
2. CONVULSION
3. COMA

IN CASE OF THE ABOVE SYMPTOMS, CHECK BG WITHOUT DELAY. IF BG < 70 THEN, IMMEDIATE ACTION IS NECESSARY TO PREVENT BRAIN DAMAGE.

TREATMENT:

- 3 TSPoons OF POWDERED SUGAR OR GLUCON -D WITH HALF GLASS OF WATER



IF DIFFICULTY IN DRINKING/ SEVERE HYPOGLYCEMIA

1. APPLY A PASTE OF 3 SPOONS POWDERED SUGAR IN SMALL QUANTITY WATER, TO THE INNER PORTION OF CHEEKS OR GUMS.
2. IN CASE THE ABOVE STEP IS DIFFICULT TOO, THEN TO GIVE INJECTION GLUCAGON
DOSE < 12 YEARS (0.5 MG/0.5ML), > 12 YEARS 1MG/1ML EITHER SUBCUTANEOUSLY OR INTRAMUSCULAR, BY A TRAINED FAMILY MEMBER OR MEDICAL PRACTITIONER.
3. IN CASE ALL OF THE ABOVE IS NOT POSSIBLE, THEN RUSH TO THE NEARBY HOSPITAL FOR INTRAVENOUS GLUCOSE OR GLUCAGON INJECTION.

HOW TO PREVENT HYPOGLYCEMIA?

1. MONITOR BG REGULARLY AND INFORM THE DOCTOR IF THE BG IS CONSISTENTLY LOW AND CORRECT YOUR DOSE OF INSULIN ACCORDING TO HIS ADVICE.
2. TO DRAW CORRECT / PROPER INSULIN DOSE.
3. HAVE RIGHT FOOD AT THE RIGHT TIME AND NEVER MISS/ DELAY FOOD.
4. TO TAKE ADDITIONAL SNACK PRIOR TO UNACCOMMODATED EXERCISE.
5. IN CASE OF VOMITTING AND DIARRHOEA TO CHECK BG 2-4 HOURLY AND URINE KETONES AND TO HAVE PLENTY OF LIQUIDS

KEEP THE DIABETES KIT HANDY ALL THE TIME.

FOR SCHOOL CHILDREN THE AUTHORITY MUST BE AWARE OF AND INSTRUCTED REGARDING THE HYPOGLYCEMIA MANAGEMENT. I D CARD MUST BE WITH THE CHILD AT ALL TIMES.

I D CARD AN EXAMPLE:

NAME:
PARENT NAME:
DIAGNOSIS:

IN CASE FOUND UNCONSCIOUS URGENTLY CONTACT THE SAID NUMBERS. RUSH THE PATIENT TO NEARBY MEDICAL FACILITY.
THERE IS A PACKET OF POWDERED SUGAR IN THE PATIENTS POCKET, RUB IT ONTO THE INNER CHEEK/GUMS TILL YOU REACH THE MEDICAL FACILITY. THIS COULD BE LIFE SAVING FOR HIM.

ALL WORK AND NO PLAY WILL NOT CONTROL DIABETES

Physical exercise should be encouraged in children with diabetes as it helps in weight control and limits rise of blood glucose after meals.

Diabetes should not limit the ability of the child to excel in a chosen sport.

Swings in blood glucose can occur during and after exercise.

Plasma Blood Glucose	Carbohydrates (CHO)
<80	Withhold exercise, take 15 g CHO
80-140	1-2 g/BW CHO before activity
140-250	15-30 g CHO after activity
>300, no ketones	Begin exercise.
>300 , ketones +	Take plenty of fluids. Postpone activity until ketones return to normal.

Child should check blood glucose before and after physical activity.

All strenuous activity should include eating a 15 G snack i.e. a fruit, or a snack every 30 minutes

Have plenty of water After prolonged activity, the child needs an additional snack with more fat and protein to prevent hypoglycaemia during night

Give a snack at bedtime and do not forget to check sugar at 2 am.

IF VIGOROUS EXERCISE IS PLANNED , DECREASE PRIOR INSULIN DOSE BY 40%-50%
AND DECREASE NIGHT INSULIN BY 10-15%

Must always	Must never
<ul style="list-style-type: none">• Ensure that physical activity is• Fun• Regulated• Regular• Accompanied by snacks• With friends	<ul style="list-style-type: none">• Repetitive• Too strenuous• Too long• Between injection and meal

Warning : Strenuous activity with poor blood glucose control can result in ketoacidosis .

DIET



MUST ALWAYS	MUST NEVER
Correlate food portions with Insulin doses	Miss Insulin
Ensure balanced diet containing whole grains, vegetables and fruits	Miss Meals
Encourage eating at same time and eating snacks to prevent hypoglycemia	Overeat
Follow 3+3 meal pattern	Be too rigid with children
Always carry glucon D to treat hypoglycemia	Recommend very strict regimen as this may encourage children to lie to parents and doctors

Basal bolus regimen allows flexibility for child in meal quantity and time.

Adding greens, sprouts, or crushed vegetables in chapati, paratha, puri, idli or dosa makes food tastier and healthier.

Child can eat foods having sugar occasionally, but should exchange it with other carbohydrates or take extra insulin to avoid high blood glucose levels.

CARBOHYDRATE COUNTING

Carbohydrate counting is a method of matching insulin requirements to amount of carbohydrates one eats and drinks.

A FOOD THAT CONTAINS 15 G OF CARBS IS CALLED 1 CARB EXCHANGE

DISTRIBUTION OF CARBS DURING THE DAY

MEAL	GRAMS OF CARBOHYDRATES	CARB CHOICES
BREAKFAST	30 G	2
SNACK	15 G	1
LUNCH	45 G	3
SNACK	15 G	1
DINNER	45 G	3
SNACK	15 G	1

I CARB EXCHANGE

1 carb choice (15 g Carbohydrates) ▶



2 carb choices (30 g Carbohydrates) ▶



1 CARB EXCHANGE = 1 BREAD=1 PAV= 1 ROTI=1 CUP COOKED RICE=1/2 CUP POHA/UPMA=1/4 SABUDANA=1 DOSA= 2 IDLI=1 CUP DAL=1 HANDFUL ROASTED CHANA=2 PALMFUL SPROUTED MOONG



▲
1 Healthy Serving of vegetable
= **Size of your two open hands**



▲
1 Serving of cereal and pulses, eg.
flour/atta, rice, poha, pasta, pulses,
soya others = **Your closed fist**



▲
1 Serving of fish, meat
= **Your palm size**



◀ 1 Serving of Fruit
= **Your fist-size.**

1 Serving of fat ▶
= **Your thumb tip-size**



- ◆ Milk and milk products like yoghurt, buttermilk, low fat cheese, whey water and low fat paneer from the dairy group are excellent sources of high quality protein and calcium. They must be included in your meal plan to ensure strong bones and teeth.

Important Note

Though low in carbohydrate and rich in protein, Milk is also a rich source of saturated fat and cholesterol. It is advisable to opt for the low fat versions.



Each of the foods shown below represent **5 g Carb exchange**



*Curd - 166 g
5 g carbohydrates*



*Milk - 100 ml
5 g carbohydrates*



*Paneer - 250 g
5 g carbohydrates*

Packaged Foods

For packaged foods, the easiest way is to read the nutrition facts section on the package.

Fruits

Fruits are an excellent source of vitamins, minerals and fiber which are vital for good health

A whole fruit is preferred over fruit juice as it gives more satiety because of its fiber content

Non Starchy Vegetables

☑ Non starchy vegetables contain small amounts of carbohydrates and calories, but they pack an important nutritional punch as they are rich sources of fiber and micronutrients such as vitamin C, folic acid, B complex vitamins, iron and calcium

Try and include vegetables, raw or cooked, in your meals, two to three times a day

Choose more dark green, yellow and red colored vegetables such as leafy vegetables, bell peppers, broccoli and others

Fill up with vegetable juices, clear vegetable soups, salads, stir fry or some sautéed vegetables

3 RULES of CARB COUNTING

Count carbohydrates and match with appropriate dose of insulin

Know premeal blood glucose

Decide maximum amount of carbohydrate per meal

LONG TERM MONITORING FOR CHRONIC COMPLICATIONS

Uncontrolled diabetes can result in damage to various organs like eyes, kidney, blood vessels , nerves etc

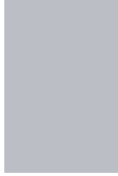
These complications may take many years to develop.

Early detection and specific treatment for many complications can prevent later problems.

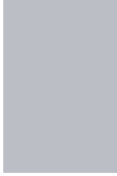
As T1DM is an autoimmune disorder, thyroid and celiac disease has to be monitored periodically.

Screening		
Growth	3 monthly	
BMI	3 monthly	
Blood Pressure	3 -6 monthly	
Blood lipids	Every 5 years after 10 years of age	
HbA1c	3 monthly	
Thyroid profile	Annually	
Celiac antibodies	Annually	
Microalbuminuria	Once a year after 10 years	
S. creatinine	At diagnosis and annually	
Eye exam	Annually	
Neuropathy	Annually	

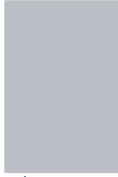
POSITIVE COPING STRATEGIES



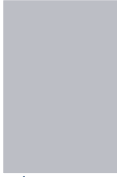
Pleasant Thoughts



Positivity search- Having diabetes makes me more self disciplined , more concerned , more empathetic person



Perspective - Having diabetes does not mean I am sick or disabled



Planning for future- Let me save money to buy Insulin and glucometer