



A *Guide to School*

To Support Children with Type 1 Diabetes





ISPAE

This educational material is prepared
for
the Indian Society for Pediatric and Adolescent Endocrinology
(ISPAE)

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Outline of the module

1. **What is diabetes?** Diabetes types, symptoms, and its burden
2. **How is diabetes managed?**
3. How can you as a teacher **facilitate the safety and well-being** of a child with diabetes?
4. How to recognize and respond to **LOW and HIGH** blood glucose levels?
5. Special precautions for **special situations** like sports, day trips, overnight camps, exams, etc.
6. The **DOs** and the **DON'Ts** list



What is Diabetes?

Persons with diabetes cannot regulate the sugar/glucose levels in their blood

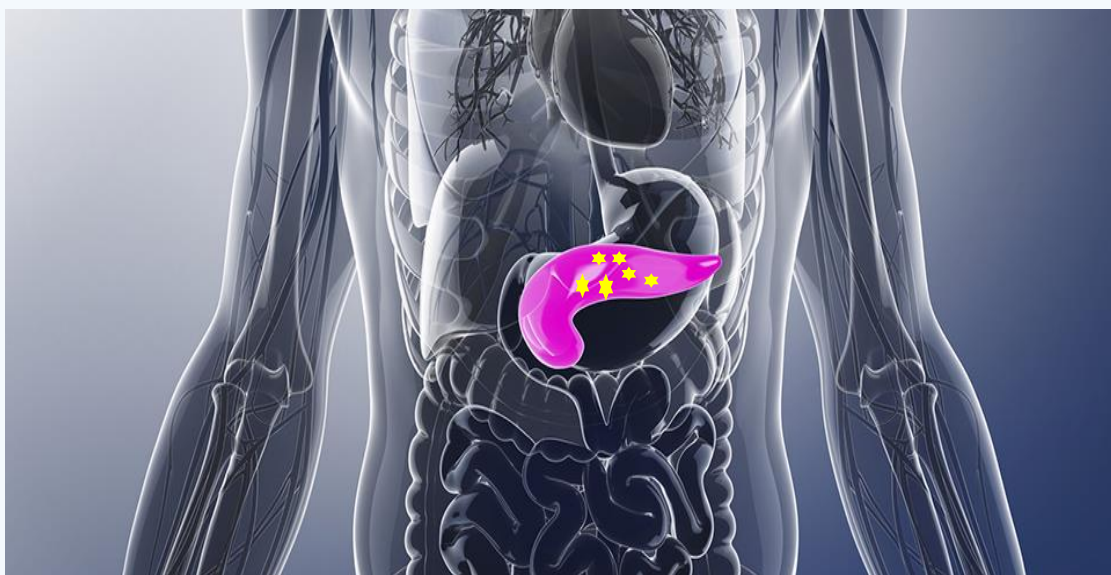
We All Need Glucose!

- **Glucose** is our energy source, just like petrol/gas for a car
- The food we eat is broken down to glucose by the digestive system



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We need Insulin just to stay alive!



★ Beta cells of pancreas gland produce Insulin

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Insulin and Glucose

- Insulin (a hormone) opens glucose doors on cells so that glucose in blood enters cells to give us energy

Insulin
Key



GLUCOSE

- If there is **NO INSULIN**, glucose cannot enter cells and **we do not get energy**

No Insulin
Key



GLUCOSE

There are **two types of diabetes**

Type 1 diabetes

&

Type 2 diabetes



*What is Type **1** Diabetes (T1D)?*

Type 1 Diabetes (T1D)



In T1D, body's own immune system attacks beta cells and they gradually stop making insulin

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Type 1 Diabetes (T1D)

It is an autoimmune condition,
NOT a lifestyle disease.

It is different from TYPE **2** Diabetes!

Type 2 Diabetes!

- Insulin is produced but is **unable to open glucose doors** on cells – **Insulin resistance**
- **Lifestyle factors** like excess weight, lack of physical activity, lack of sleep, etc. increase the risk
- Treated with lifestyle modification and oral tablets
- They also might need Insulin later



“ Type 1 diabetes is caused by eating too many sweets in early childhood. ”

TRUE

FALSE

Busting **Myths...**

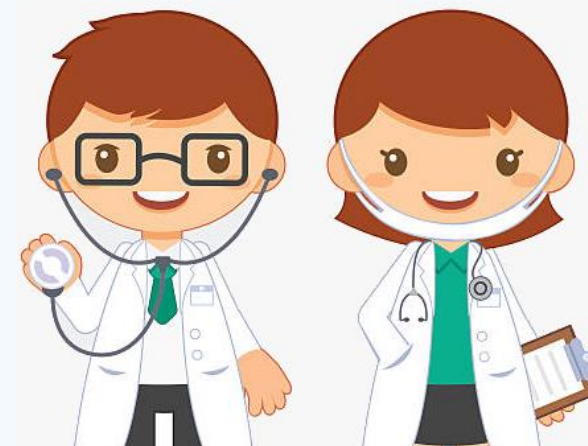
Type **1** Diabetes

- Is **NOT** caused by something parents/children '*have done*' or '*have not done*'
- Does **NOT** run in families
- Is **NOT** caused by eating sweets
- Does **NOT** spread by contact



“ But, diabetes occurs in adults.
I never heard of children getting affected by it! ”

YES! It happens in kids too!
More commonly than one would expect!
In the majority, it is **type 1 diabetes**



Do you remember what type 1 diabetes is?

Type 1 Diabetes (T1D)



T1D is an autoimmune condition where beta cells gradually stop making insulin

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How common is Type 1 Diabetes?



ISPAE

JDRF
IMPROVING
LIVES.
CURING
TYPE 1
DIABETES.



ISPAD
International Society for Pediatric
and Adolescent Diabetes



International
Diabetes
Federation



Beyond Type 1



Type 1
Diabetes
Index

Type 1 Diabetes Around the World



T1D in India

- Persons living with T1D: **860,400**
< 19 years: 282,830

In 2022

- Persons living with T1D: **1.7 million**
< 19 years: 400,000

By 2050

How do we know if a child has T1D?

Diabetes Symptoms

1. Thirsty all the time
2. Needing to go to the toilet frequently
3. Unintentional weight loss
4. Getting tired easily



Thirsty



Toilet



Thinner



Tiredness

What is the treatment?
How do children and young people manage
their T1D?

Children with T1D need to inject Insulin *multiple times a day*, lifelong

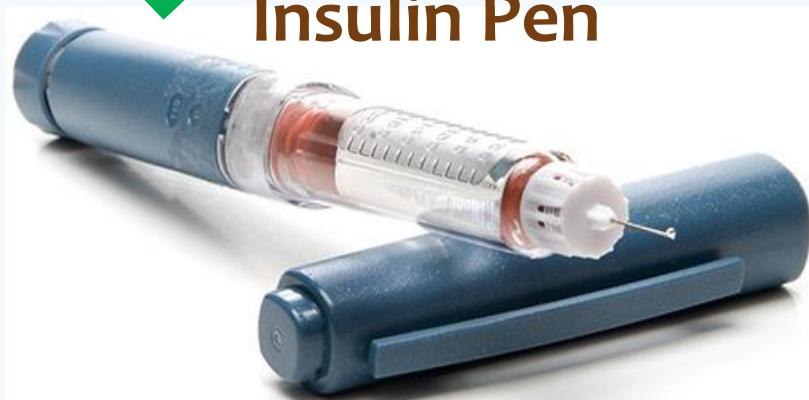
❖ They may use one of the following ways



Insulin Syringes



Insulin Pen



Insulin Pump ✓



They also need to check their blood glucose levels *multiple times a day* with one of these:

- ✓ A finger prick Glucose-check with a glucometer



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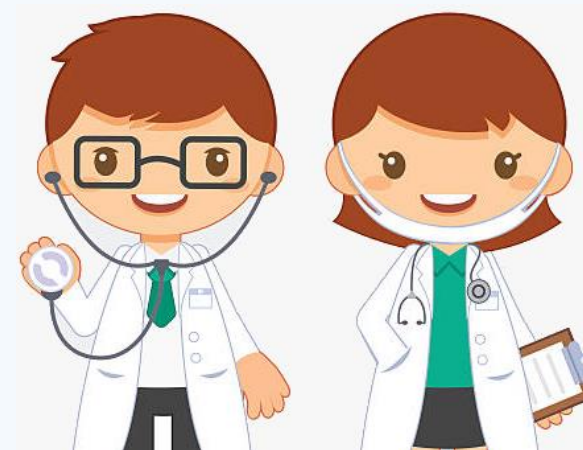


- ✓ A special reader or mobile app reads glucose from a sensor attached to the arm or thigh



Does the child have to check blood glucose
and inject at school as well?

YES!

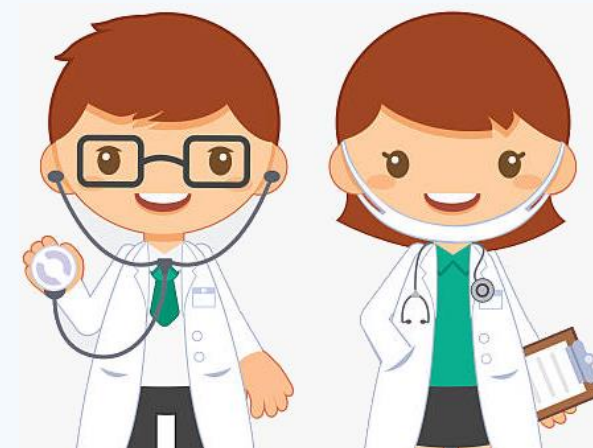
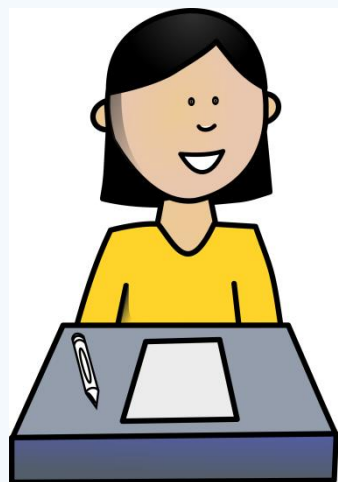


“ When and how much depends on the diabetes management plan (DMP) given by their doctor. ”





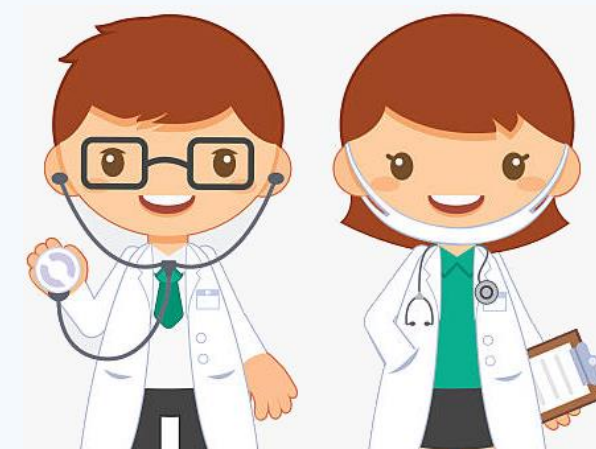
“ Both HIGH or LOW blood glucose can affect the ability to focus, learn, and play.”



“As kids spend 50% of their waking hours at school, it is very important to maintain good glucose levels at school too.”

Please allow the children to carry their diabetes supplies to school:

- Insulin pens/ syringes/ pump
- Glucometer/ CGM reader
- Low glucose treatment kit
- Extra snacks, etc.



Please support the child when they check and inject

Please allow parents to check and inject at school

**Before each major meal the child needs to:
check blood glucose and inject insulin accordingly**



Blood glucose checks are also needed



- Before and after sports/exercise,
- During exams, or
- ANYTIME If the child feels unwell in any way

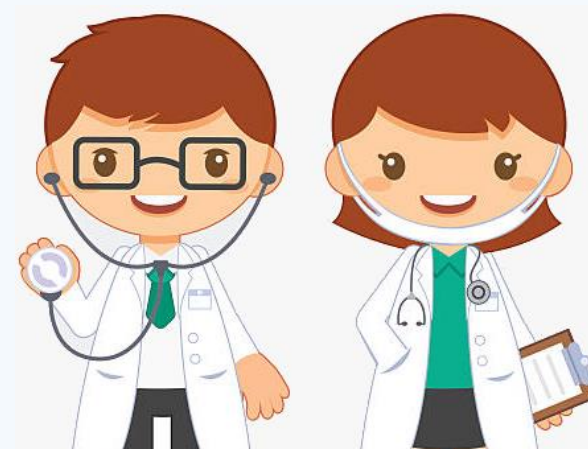


“ But, what about tablets?

**My aunt has diabetes and manages it with
proper diet and tablets!! ”**

That is Type **2** Diabetes!

**DO NOT confuse
Type 1 with Type 2**





*Who will check blood glucose
and inject insulin at school?*

Most children **above 6-8 years** can check blood glucose and take insulin on their own, **with supervision**.

Please provide them with a safe space to perform these diabetes self-care activities

- own classroom or
- empty classroom or
- sick room or
- staff room, etc.

Treat them just the same as any other child, but with a few important things to remember.



*Who will check blood glucose
and inject insulin at school
for younger children?*

- Most often the **parents can teach** the school nurse or the class teacher to do this
- In some cases, parents might visit school at lunch time to check and inject
- Make sure the diabetes management plan made jointly by the parents, doctor, and school staff clearly designates the person who will check blood glucose and inject insulin at school

Example of details to be included in the diabetes management plan:

- Is insulin at school required? YES ☐ NO ☐
- Who will administer insulin at school? Child ☐ Parent ☐
school nurse ☐ teacher ☐ older sibling ☐
- Where is Insulin kept? In staff room fridge ☐ Child's backpack ☐
- Who will check blood glucose?
- Where is the blood glucose meter kept?
- Where is the LOW glucose treatment kept?

“ My daughter checks her blood glucose inside the classroom during class. We thank her school for treating it as a normal task. ”

- Sirisha,
Mother of S, age 9,
Hyderabad.

“ My son takes insulin shots 4-5 times a day including at school. We are grateful to his school for giving him freedom and privacy. ”

- Ramana,
Father of R, age 14,
Hyderabad

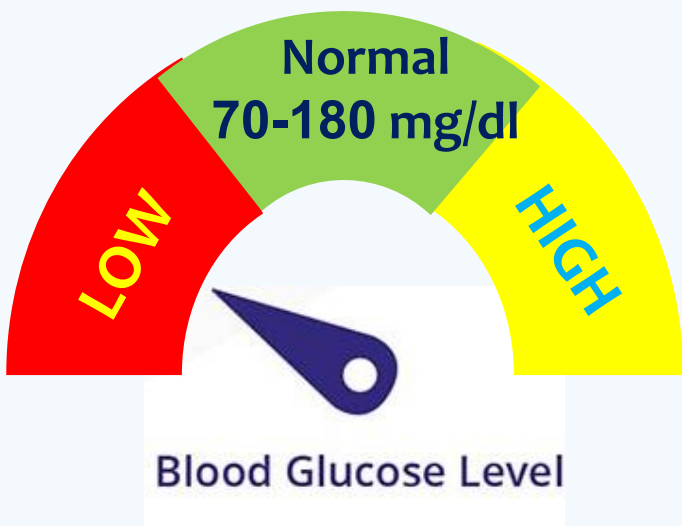


T1D should not limit the child from participating in anything!

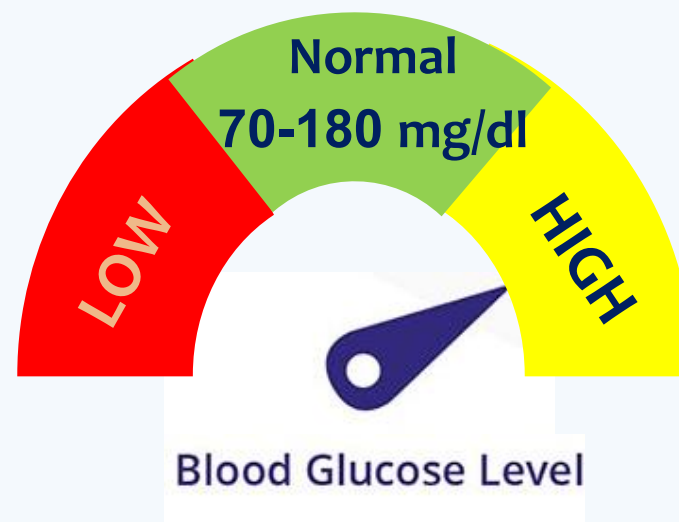
BE AWARE
BE PREPARED

Extreme fluctuations in blood glucose
could be harmful to the child

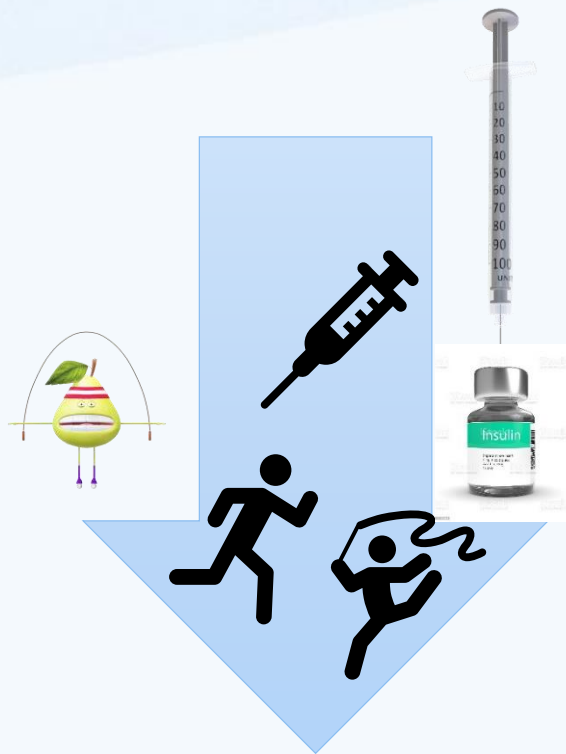
LOW blood glucose



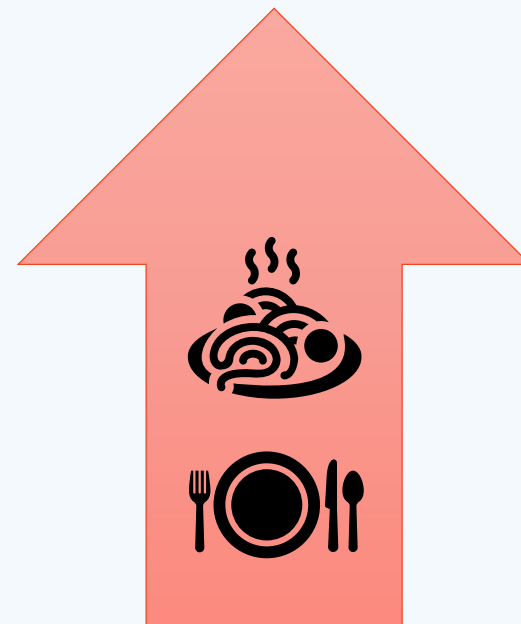
HIGH blood glucose



General Rule



EXERCISE & INSULIN
decrease blood glucose



FOOD, MISSING INSULIN
increase blood glucose

LOW: Low blood glucose – level <70 mg/dl

**Dangerous if
not identified &
treated in-time**

SERIOUS LOW:

- Low blood glucose level < 55 mg/dl

SEVERE LOW:

- Low blood glucose causing drowsiness & even convulsions/fits/coma
- Dangerous & requires external assistance for management

Think **LOW** if your pupil seems...



Tired



Having Headache



Very Hungry



Dizzy



Confused



Upset or nervous



Irritable

What is treatment for **LOW** blood glucose (**Hypo**)?

One serving of any one fast-acting sugar
(approx. serving sizes in table)

Anything with fat in it
(biscuits & chocolates)
are **NOT** fast-acting
sugars

Fast acting sugar		Serving size < 8 years	Serving size >8 years
Table sugar or Glucon-D		1 teaspoon	1 tablespoon
Glucovita bolts		3 tablets	6 tablets
dextrose tablets		2 tablet	4 tablets
Juice		50 ml	100 ml
Jellies/hard candy		2 small	4 small



CONSULT INDIVIDUAL DIABETES MANAGEMENT PLAN for

- **Type** of fast-acting sugar
- **How much** to give
- **Where to find** it in the child's T1 kit

When suspecting **LOW** &

Child is awake & alert

- 1** Blood glucose to be checked
- 2** If less than 70 mg/dl,
child should take one hypo-treatment
- 3** Recheck blood glucose after 15 minutes

If still less than 70-80 mg/dl,
should take another hypo-treatment

If it is more than 70-80 mg/dl,
should have a small snack

*After correcting a **LOW** give a snack*
When blood glucose is more than 70 mg/dl

Example snack after HYPO treatment
Any **ONE of these (15gm carbs)**

Unsweetened milk 120ml



1/2 of big banana Or 1 small banana



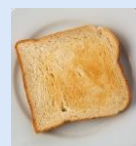
1 medium Apple



1 Idli with tomato chutney



Bread 1 piece 3.8'' with butter/chutney



PLEASE NOTE:

This is different from
the fast-acting sugar
given immediately for
a low-glucose event

GOLDEN RULES

- **Treat LOW in place:** Check and treat in the classroom itself as far as possible
- **DO NOT send the child alone** to sick room or staff room to check and treat. **Someone should accompany** until child gets better
- **Treat LOW if in doubt** based on symptoms **even if** blood glucose checking is not available/possible



*Call &
inform
Parents*

**If child is
drowsy/ convulsing/ fainted**

Put in RECOVERY position

**DO NOT
forcefully feed
food or liquids**



CALL PARENTS



**Call ambulance/ take child to hospital
&**



Inform the doctor about child's T1D

Expect and prevent **LOW** Blood glucose

Insufficient or Missed meals

- **Ensure child eats on time** without delay. Give the young child enough time to finish the meal

Accidentally taking too much insulin

- **Kindly supervise** during insulin injection

Sports, prolonged play, physical activity

- **Allow to check glucose and eat** a snack before and after exercise

Vomiting after meals, and diarrhea

- **Inform parents** soon, keep giving fluids, check blood glucose. Treat if **LOW**

HIGH: High blood glucose – level >250 mg/dl

Situations that can cause high blood glucose levels:

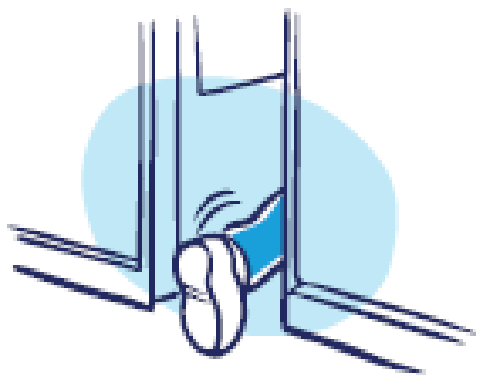
- Illness
- Stress
- Skipping insulin injections before meals

DIABETIC KETOACIDOSIS:

- Persistently high blood glucose if not treated can lead to increased ketoacids in blood which is dangerous

EMERGENCY

Suspect **HIGH** blood glucose if child is...



Needing to pass urine
more than usual

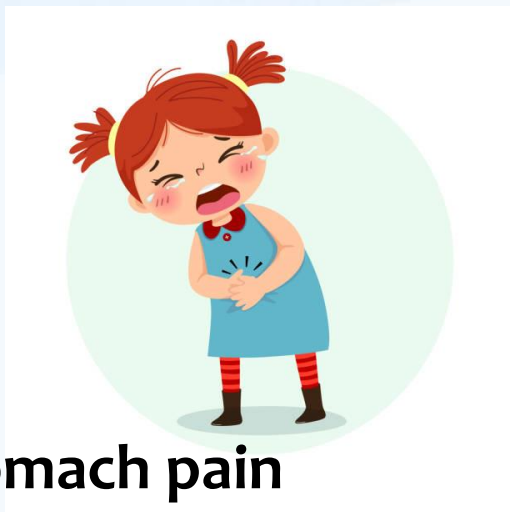


Very thirsty



Sleepy

DANGER SIGNS - Suspect KETOACIDOSIS



Stomach pain



Fast breathing



CALL PARENTS

1. Check blood glucose (treat if HYPO)
2. Take to hospital if parents are delayed
& inform doctor about child's T1D

“ We have a WhatsApp group with school nurses where they share her readings before every meal and as needed. We accordingly advise on insulin dosage. The nurses are experts in dosing via syringes too.”

- Priya,
Mother of A, 8y, Gurgaon



Participating in professional sports is dangerous for children with T1D and not recommended.

TRUE

FALSE

- For physical fitness and mental well-being, all children (**type 1 or not**) should engage in a **minimum 60 minutes** of moderate- to vigorous-intensity physical activity daily.

Students with Type 1 should participate fully in physical education classes & team or individual sports.

BE AWARE
BE PREPARED



Most often playing/sports result in
LOW (low blood glucose)



Preventing **LOW** during sports/play

Parents can make changes to diabetes management plan for planned activity

For example:

- Extra blood glucose checks
- Decreased Insulin dose and/or having an extra snack

**Have a sports schedule
&
inform parents ahead!**

**Please allow extra time
to check glucose and
eat snack before PE**

Unplanned physical activity

- Encourage and let the child check blood glucose before and after the activity
 - Allow time to eat an extra snack before starting the activity **(especially if blood glucose is < 100 mg/dl)**
- Usually a **small snack (15 g carbs)** is needed for every one hour of activity

When to avoid/delay sports/exercise?



LOW blood glucose

- **TREAT** with sugar and snack
- **WAIT** for 20 minutes before activity
- **REPEAT glucose check** one hour into activity
- May need another **SNACK**

HIGH blood glucose
&
illness

- If blood glucose >250-300, should take correction insulin dose as per care plan
- Check after 30 minutes and if glucose is <250, can start activity



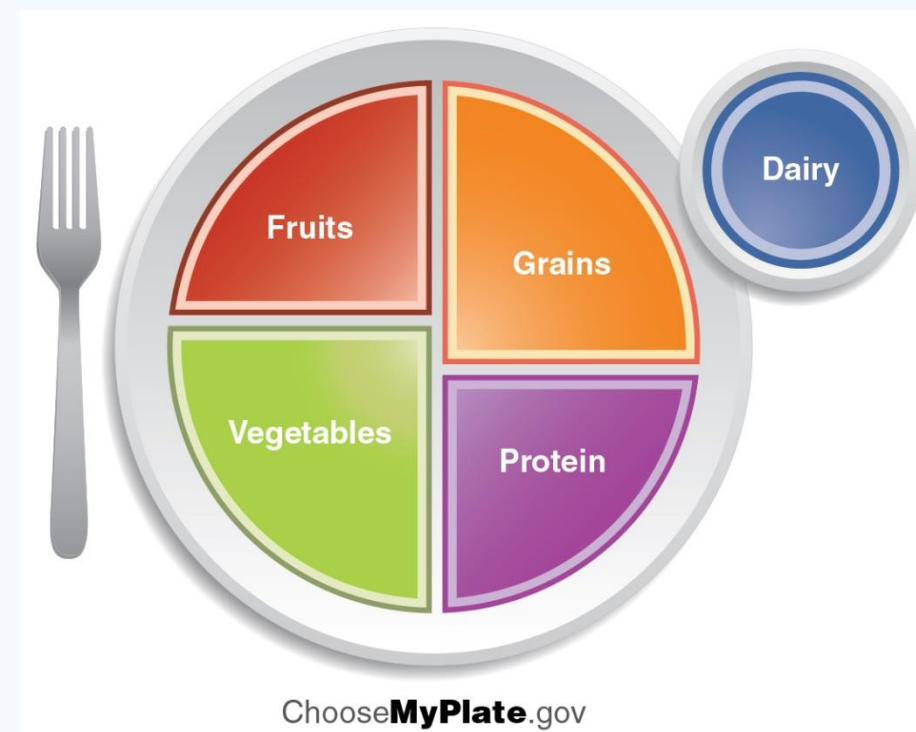
Children with T1D can eat all varieties of foods including bananas, potatoes, mangoes, cakes, etc.

TRUE

FALSE

There is *NO* diabetic diet! There is only a healthy diet

- **Every child (T1D or not)** should consume a **healthy diet** rich in whole grains, vegetables, fruits, protein, and good fats
- Any child including one with T1D can have a **treat** (sweets/cakes/ice cream, etc.) **occasionally and limitedly**
- **Only difference is - children with T1D take insulin before a carbohydrate meal**



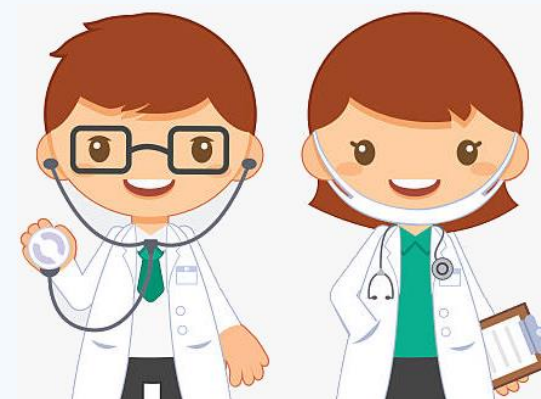
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Is it safe to go on day/overnight trips and picnics?

YES!
Absolutely.

With a bit of planning!



Plan ahead!


- Inform parents & request a detailed **diabetes management plan** and **designate clearly who will be in charge of**
 - supplies,
 - checking, injecting, and
 - informing parents
- Identify an emergency/hospital nearest to the place you are going
- Keep a lot of snacks ready. As kids engage in full-day activities, **expect LOW glucose events**

“ My son checks his glucose and injects insulin himself at school. We are grateful to his school for treating T1D as normal and taking him on a 5-day school trip with regular Blood glucose updates - ”

- Pragya, Mother of Rachit,
age 10, Pune.

Exams

- Exams add extra stress to the diabetes management
- Low and high glucose levels can affect child's concentration. Important to maintain good blood glucose levels during exams
- CBSE allowed children with diabetes to carry sources of sugar and snacks into the exam hall to treat any low glucose events

 केन्द्रीय माध्यमिक शिक्षा बोर्ड
CENTRAL BOARD OF SECONDARY EDUCATION

CBSE/Coord/ASC/112567/2046 21/02/2017

CIRCULAR

REG. CARRYING OF EATABLES TO THE EXAMINATION CENTRE BY TYPE 1 DIABETIC CANDIDATES

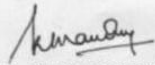
Among all the diabetic population of our country, there are sizeable number of children who are suffering with Type 1 Diabetes who need insulin injections at regular intervals to manage their blood glucose level. These children need frequent meals to avoid hypoglycemia which may otherwise affect their health/performance.

2. Considering above in view, the Board has decided that the students suffering from Type 1 Diabetes and are appearing for the Board's Class X and XII examinations are permitted to carry any of the following eatables with them while coming to the examination centre:

1. Sugar tablets/Chocolate/Candy
2. Fruits like Banana/Apple/Orange
3. Snack items like Sandwich
4. Small bottle of water (500 ml.)


3. However, the following modalities have to be observed :

- a) These children shall have to submit a certificate from diabetic Specialist alongwith full diabetic history, nature of their diabetes and the need for snacks during the examination which shall be forwarded by the Principal of the school where the student is studying.
- b) The food items shall be kept with the Invigilators at the examination centre concerned, who, on their need, shall hand over the eatables to these candidates.


(K.K. CHOUDHURY)
CONTROLLER OF EXAMINATIONS

NCPCR


- NCPCR issued a directive to ALL educational boards asking them to place protocols facilitating daily diabetes care in the classroom and during exams
- Directive was issued to allow technology for treating diabetes (CGMS, insulin pumps, glucometer) into classrooms and exam halls




प्रियंक कानूंगो
Priyank Kanoongo
अध्यक्ष
Chairperson

सत्यमेव जयते

भारत सरकार
GOVERNMENT OF INDIA
राष्ट्रीय बाल अधिकार संरक्षण आयोग
NATIONAL COMMISSION FOR PROTECTION OF CHILD RIGHTS
नई दिल्ली-110 001
NEW DELHI-110 001



आज़ादी का
अमृत महोत्सव



भारत का बाल अधिकार संरक्षण आयोग
NCP CR

D.O Letter No- 227850/NCPCR/CH(1)-2022-23 DD4572
Date: 28.03.2023

To
**Secretary,
Department to Education,
Of all States/UTs
(As per the attached list)**

5. A circular may kindly be issued for all the schools to ensure health of children with Type 1 diabetes on the following-

i- A child with type 1 diabetes may require checking blood glucose, injecting insulin, taking a mid-morning or mid-afternoon snack, or doing other diabetes self care activities, as advised by a medical person, and should be permitted by the class teacher to do so during exams and otherwise also

ii- The child can participate in sports as advised by medical person.

iii- Children with Type -1 diabetes giving their school exams and other competitive exams may be considered for the following -

- ✓ Permitted to carry sugar tablets with them.
- ✓ Medicines/ fruits, snacks, drinking water, some biscuits/peanuts/dry fruit should be allowed into the exam hall and kept with teacher, if required these items shall be given to children during the examinations.
- ✓ The staff should permit the child to carry a glucometer and glucose testing strips along with him/her into the exam hall are may be kept with Invigilator/Teacher.
- ✓ The child should be permitted to test blood sugar and to consume the above mentioned items as per requirements.
- ✓ Children using CGM (Continuous Glucose Monitoring, FGM (Flash Glucose Monitoring) and/ or insulin pumps have to be given permission to retain these devices during exams as they are attached to the body of said children. In case a smart phone is used as a reader, it may be handed over to the Teacher/Invigilator to monitor the blood sugar levels.

Exams – what can you do?

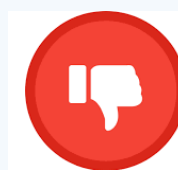
- Allow the student **to bring the diabetes kit and snacks** into exam hall
- Provide privacy for checking and injecting
- Allow supervised **extra bathroom breaks** if needed
- An extra invigilator might be needed to **accompany the student in case of emergencies**
- Together with parents, may apply for special consideration by communicating to the examination officer beforehand

Provide a safe, fun & inclusive learning space!



DO

- Request individual diabetes management plan with emergency contact details
- Allow extra time to check blood glucose, eat snack when needed
- Be aware of Danger signs
- Inform Parents in time
- Reach nearby emergency room if danger signs



DON'T

- Restrict the child from checking, eating an extra snack
- Restrict bathroom breaks, and taking rest when needed
- Leave the child unattended when unwell
- Restrict the child's activities/sports
- Exclude from trips

Have an Emergency Kit



GLUCOMETER



INSULIN



LOW GLUCOSE TREATMENT KIT



Parents contact numbers



Psychosocial wellbeing of the child

- Young people with diabetes have a **higher risk** of experiencing **discrimination, stigma, and bullying**, which can affect their self-esteem, motivation, and emotional wellbeing
- By **addressing peer issues and bringing acceptance** to this condition, you can play a tremendous role in improving these children's psychosocial health

“ When my daughter was teased at school for having diabetes, teachers took efforts to sensitize the whole grade about T1D.”

- Priya,
Mother of Adivah, 8y,
Gurgaon



*for taking the time to learn about Type 1
diabetes to help your children with T1*