



Mishti Guardian

(A CDiC Initiative to Empower Parents and Families of Children with Type 1 Diabetes)

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Mishti Guardian newsletter is an endeavour of the Changing Diabetes® in Children Program to connect the parents of children with Type 1 Diabetes, diabetes educators and doctors. In the fifth issue of this newsletter, we bring informative articles on diabetes management. It's heartening to see children with Type 1 Diabetes smiling and leading a healthy life.

As per IDF, 2015, 69.2 million people are living with diabetes, out of these 5–10% have Type 1 Diabetes. Although Type 1 Diabetes is one of the chronic diseases prevalent in children and it impacts their whole life, it is yet to get the needed attention from policy makers and other government stakeholders. All children deserve a good and positive life, and children with diabetes are no exception. Comprehensive treatment along with support from family and society to a great extent, can help these children grow as productive members of society. To reach this goal for children with Type 1 Diabetes we need to create awareness about the disease and ensure people are educated on Type 1 Diabetes. In addition to this, parents, doctors and diabetes educators along with civil society need to reach out to policymakers creating a strong advocacy for Type 1 Diabetes. There is actually a great need to improve awareness about Type 1 Diabetes at the level of policy makers. This is the time that parents and educators come together along with doctors for advocacy and rights of children with Type 1 Diabetes.

In this issue, we continue our efforts to strengthen knowledge and education. Dr Manoj Chadha's article- Management of diabetes during festivals- underlines how a child with Type 1 Diabetes can manage diabetes and also enjoy festival season. Dr Surendar Kumar's article empowers parents and educators by sharing details on self-adjustment of insulin dose. We get an inspiring view of life with Type 1 Diabetes through story from SPAD CDiC centre by Dr Rishi Shukla. Stress is an integral factor to be handled in all long term disorders. You will also find an interesting article giving tips on effective coping strategies to fight stress and maintaining health and happiness by Dr Archana Sarda. In the last page, we share success story of how due to the concerted efforts of one our center director, Dr AK Jhingan, the Central Board of Secondary Education (CBSE) has issued a special circular, directing its affiliated institutions to allow children with type1 diabetes to take mid-day snacks during their exams.

Thanks a lot for your support and commitment. We look forward to your valuable feedback and suggestions. Remember, this is your magazine, so please do send in your feedback and contributions.

With best wishes,

Editorial Team



Management of diabetes during celebrations and festivals

Dr Manoj Chadha, Consultant Endocrinologist, Hope and Care, Mumbai

Celebrations and festivals are part of our life. These can be birthday parties, a marriage party, Diwali, Christmas or New year party. It is true that no celebration can be conceived of without food and beverages and any change in activity levels can disturb the management of diabetes. This presents certain challenges for people with diabetes.

However, nothing stops a person from enjoying and celebrating as long as one keeps control and moderation. A child with diabetes doesn't need to be isolated or deprived during any such festivity.

The question is *how* to celebrate and continue to stay well under control. One can consider the following tips to start with.

- Do not miss medicines and monitoring on any occasion. It is better to give guidelines on how to have fun without disturbing health.
- Try to maintain consistency in meals. If food is going to be served late, it is good to have some snacks beforehand.
- Practice portion control – in fact, one can eat a variety of food's including favourites, if only one keeps controls on the portion of food one eats. A small portion is less likely to upset blood sugar levels.
- Follow a regular exercise routine. Moderate increase in physical activities compensates excess eating during the celebration or festival.

Be it any celebration, a family get-together or festival it'd be well to take a few moderation steps such as:

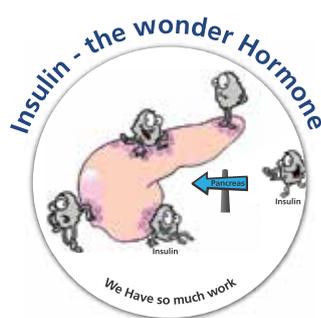
- Check the sugar level before you leave for the get-together, so that one can plan ahead for the diet and get a clear idea of how much insulin is needed.
- Never start hungry. Have a small snack; one is less likely to overeat if one has already eaten something.
- Check out the whole buffet table before actually starting eating. Choose non-fat or low-fat foods. Choose more fruits, vegetarian meal. Have more of grilled, barbecued, marinated, steamed, baked or poached food. Limit fried, creamed, buttered food and those served with sauce.
- If one wants to eat a sweet dish or high-calorie snack, take a small serving and compensate with 1 or 2 units of extra short acting insulin.
- Have water rather than sweetened drinks.
- Wear fitting shoes for the party if it involves lots of walking and dancing. Poor footwear can cause blisters or other foot injuries.
- Above all, make sure to carry some candy or sugar because undue exertion may lead to hypoglycemia or low blood sugar. Keep friends informed about hypos so one gets ready help when needed.

One doesn't need to tell everyone one has diabetes, but one doesn't need to hide it either. Instead, show others by example how one can manage diabetes by moderation, which is good for everyone.

Maintaining a healthy lifestyle as one continues partying and merry making will help keeping blood sugar levels in near normal range and also improve the quality of life for children and adolescents with Type 1 Diabetes. Party or no party, we can defeat diabetes and stop it from defeating us.

Insulin is a hormone produced by the beta cells of the pancreatic islets. The discovery of insulin was one of the most revolutionary moments in medicine. The name insulin comes from the Latin insula, for islands. It refers to the pancreatic islets of Langerhans that contain the beta cells. 30th July is celebrated as Insulin Day. On this day in 1921, Frederick Banting and Charles Best injected a test subject; a dog called 410, with pancreatic extract, and recorded a major drop in its sugar levels. This was a major breakthrough in the treatment of diabetes. The introduction of insulin seemed literally like a miracle for people with diabetes. Estimates show there are millions of diabetics living healthy and reproductive life today because of insulin.

30th July, Insulin Day



- Helps in creating energy for growth and living¹
- Helps to maintain protein balance in muscles¹
- Insulin helps in storage of glucose as glycogen and stops production of new glucose
- Helps in fat metabolism and Improves lipid profile¹
- Plays a fundamental role in assuring tissue repair in injury and illness¹

References: 1. Guyton & Hall, Text book of Medical Physiology - 12th Edition. 2. <http://www.scifee.br/pdfs/ins/31679-4508-ens-9-3-0404.pdf>.



Self-adjustment of insulin dose in children with Type1 Diabetes

Dr Surendra Kumar, Associate Professor, Dept. of Endocrinology,
Patna Medical College & Hospital, Patna

Diagnosis with Type1 diabetes means that the child or a person with Type 1 Diabetes requires insulin injections for survival. The goal of treatment is to maintain the best possible level of glucose control by providing appropriate insulin at the appropriate time to help them live healthy, long and near normal lives. Although as a doctor we try to reach the optimum dose of insulin required by the child at that particular time yet there are many reasons blood glucose levels can change throughout the day.

Many things contribute to fluctuations in blood sugar levels, this is not restricted to diet, exercise or insulin but other factors also. Any physical or mental stress like acute illness or exams, activities like a birthday party, sports match, extra homework or the favourite dish which mom had cooked can affect blood glucose levels. It is therefore necessary for educators and guardians of children with diabetes to learn about self-adjustment of insulin doses and use them under the guidance of medically qualified health care professional.

Insulin treatment plan

Mostly, there are two general types of insulin treatment plans:

1. Intensive insulin treatment - In this regimen, the child needs to take three or more doses of short acting insulin along with the main meals per day and one or two doses of long acting insulin for maintaining the minimal requirement of insulin throughout the day. Doses of short acting insulin can be adjusted. Although it seems tough, but this regimen is best for children and adolescent to maintain optimal blood sugar levels.
2. Conventional insulin treatment – In this regimen 2 doses of premixed insulin (short and long acting e.g. 30/70) or split mix before breakfast and dinner are given. Children on this regimen need to have a fixed diet at the particular time, with least variations in activities to achieve the optimal glucose control.

Learning Self Adjustment

Being able to confidently manage and adjust own insulin doses is a key part of managing Type 1 Diabetes. After the insulin dose is decided by the physician, a few actions which are important are:

- Regular monitoring of blood glucose levels and recording the results.
- Teaching them Insulin dose correction - Rule of 1800 and Rule of 500 for children on intensive insulin regimen.

What is Rule of 1800? When to use it? - It can be used when the child is having occasional high blood sugar level

High blood sugar correction dose = Difference between actual and target blood sugar ÷ correction factor.

Correction factor (point drop per unit of short acting insulin) = 1800/TDD (Total Daily Dose = sum of both short and long acting insulin dose)

E.g.- A child who takes daily **40 units** of insulin (18 at bed time, 8 in morning, 7 in afternoon and night), was found to have 356mg/dl sugar before-lunch. So how many extra units of short acting insulin need to be taken? Correction factor = $1800/40 = 45$. Expected pre-meal blood sugars should not be more than 140 mg/dl. Hence, $356 - 140 = 216$ mg/dl, is the excess sugar needed to be metabolised. One unit insulin metabolizes around 45 mg/dl of sugar. Hence, $216 / 45 = 4.8$ units, child can easily take extra 3 to 4 units and remain on the safer side and help reduce hyperglycaemia.

What is Rule of 500? When to use it? To calculate extra insulin needed for the extra carbohydrates the child wants to take. It is used when a child wants to eat a sweet or extra carbohydrate because of any reason or eat less due to any reason. Calculating Insulin requirement in accordance with extra carbohydrates intake helps in self-adjustment of insulin dose; $500 \div TDD = 1$ unit insulin covers so many grams of carbohydrate. Example: Assume TDD = 40 units = $500 \div 40 = 12 = 1$ unit insulin covers 12 gm carbohydrates. It is essential to teach the child and parents to calculate carbohydrates in their diet.

E.g. - A child taking 40 units of insulin wants to have 1 cup payasam / kheer which is having 1 cup milk, 2 tea spoon sugar and some rice and dry fruits = 40 carbohydrates so $40 \div 12 = 3.33$. The child can safely take 3 extra units and enjoy payasam/ kheer one day.

Also, parents and educators need to understand that this number is a starting point; to be evaluated by blood-glucose testing and then revised as needed to reach blood-glucose targets. Also it will change as the child grows.

It is better to teach self-adjustment of insulin dose to the child and the parents as it helps in maintaining better glucose control along with quality of life in the long run.

<http://dtc.ucsf.edu/types-of-diabetes/type2/treatment-of-type-2-diabetes/medications-and-therapies/type-2-insulin-rx/calculating-insulin-dose>

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Today's Keerti
is an energetic and fun loving girl.
She is confident and full of life.

Facing diabetes in style

- A story of young girl with type 1 diabetes.

Keerti is a cheerful 20 year old girl. She has had diabetes for the last eight years.

Keerti was studying in class four, when she was diagnosed with Type 1 Diabetes. She was growing weak, losing weight and one day she fainted in the school assembly. She was rushed to the hospital by her parents. When Keerti was diagnosed with Type 1 Diabetes, her parents were shocked. Diagnosis of diabetes in their nine-year-old child was unbelievable for them. Approximately, a month after diagnosis, her parents asked the treating doctor on when her treatment could be stopped, since they were finding it difficult to manage the same.

It was becoming increasingly difficult for her parents to fund the education of their children and also to take care of Keerti medicine expenses. Keerti also felt uneasy about the insulin injections and the sadness in her parents life. It was then they came to know about the SPAD CDiC centre. Her parents were ecstatic to know about it.

Keerti likes to come to the CDiC centre and attend the children camp meeting there. She believes that she has learnt a lot about taking care of her health by attending these educational workshops. She knows she is not alone and can do everything in her life by taking care of her diabetes. Her HbA1c which was 12.8 before joining the program, now remains between 6 to 8. She helps younger children by teaching them injection techniques.

INSIGHTS

Life insight - Child

"I love my life and insulin is the important part of my life"

Life insight - Parents

"I am proud of Keerti, but I am always worried about her marriage and her future."

Goal of life

"I want to become a fashion designer and I want to support all little children with any diseases to fulfil their dreams."

Insulin is life for children with Type 1 Diabetes

* Name and few specifications changed



FAQs

Q1 Can a child with Type 1 Diabetes outgrow the need of insulin injections? What is the life expectancy of children with Type 1 Diabetes?

Type 1 Diabetes is an autoimmune disease, a condition in which the body's immune system destroys pancreatic β -cells which produces insulin. People with Type 1 Diabetes need insulin from the beginning. As of now, one cannot outgrow insulin injections, but treatment options are improving all the time and people with Type 1 Diabetes can lead full and active lives. A 30 year study by the University of Pittsburgh, published in 2012, noted that people with Type 1 Diabetes born after 1965 had a life expectancy of 69 years*. New improvement in diabetes care every year brings a hope that people with Type 1 Diabetes can even live significantly longer than their siblings and friends because of following a healthy and disciplined life style.

* Dr. Orchard, Aaron M. Secrest, Ph.D.; Ravi K. Sharma, Ph.D.; and Thomas J. Songer, Ph.D., University of Pittsburgh: Life Expectancy Increasing for Type 1 Diabetics, According to Latest Pitt Research. August 10, 2012

Q2 If due to any reason, one completely forgets to take their long acting insulin at the prescribed time say 9.00 pm and wakes up at midnight and realizes this, what should he/she do?

As the saying goes, better late than never! A person should take the insulin at that time as long-acting insulin is effective around 24 hours. It is good to increase monitoring and keep an eye on sugars, if there is some overlap with the following evening's bedtime dose or peak action of that insulin dose.

Skipping that insulin dose will mean high blood sugar levels for at least next 36 -48 hours.

Q3 . What is the most suitable age for a child to take over his or her own daily Type 1 Diabetes management?

Ultimately every child needs to learn self-management of Type 1 Diabetes as he or she grows up and becomes independent. I suggest that child with Type 1 Diabetes can participate in diabetes management from beginning in a positive way according to his or her age. A child of 5-6 years can choose the finger which needs to be pricked. A pre-teen can load or dial the insulin dose and even take a few doses and gradually improve to taking all doses on one's own. There is no rule as such, but children and adolescents need supervision; and the same rule applies to children with Type 1 Diabetes too. The right age for complete responsibility for diabetes management depends on many factors which include the child's age, an understanding support system, and the education that the child has received. Good self-management requires an individual to understand the impact of food and exercise on blood-sugar levels, as well as the role of different insulin regimens. We can use the age of 16-18 years, since that's the age till which children are allowed to be children and are not considered adults. Till then, parents and family members need to play an active role even if the child is capable of self-management. Even when they become adults, it is good to support these children for few more years until they become mentally independent.





Prevention of Psychological disorders and depression in children with Type 1 Diabetes

Dr Archana Sarda, Consultant Diabetologist, Sarda Center for Diabetes & Self-care

Living life with type1diabetes poses unique challenges. Today we all appreciate that mind and body are intimately connected. A child with type1diabetes can have problems ranging from anxiety and depression to a kind of burnout. Sometimes it just gets too much to meet the demands of self-care, manage a social life, education and also not worry about a complication free life. Health care professionals can assist children recover quickly from setbacks that lead to problems.

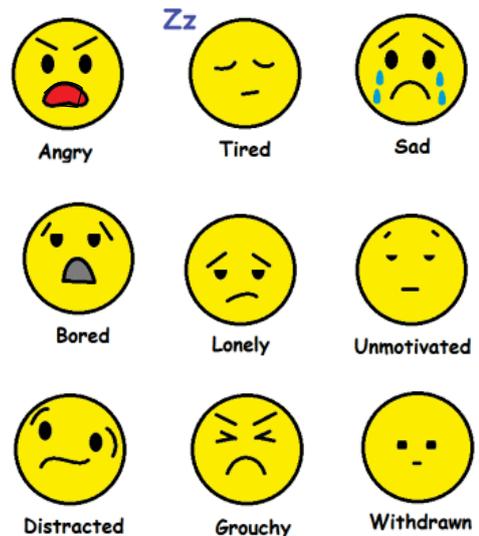
While with better education, awareness and care, more and more children with type1diabetes live fulfilling and happy lives, it cannot be denied that children diagnosed with Type 1 Diabetes are more likely to develop a psychiatric disorder or to attempt suicide than their healthy siblings .

Diabetes and depression - Let's talk



As parents or care-givers, if you see two or more of these symptoms¹ in the child for more than two weeks, please take it seriously.

- Loss of interest and enjoyment in any activity
- Disturbed sleep (Too much or too little)
- Disturbed appetite (Too much or too little)
- Feelings of guilt or low self-worth
- Poor concentration and performance
- Medically unexplained symptoms like headache, backache
- Neglecting personal hygiene
- Excessive crying /anger
- Refusal to do daily work – going to school / college



Children with diabetes are at higher risk of depression^{2,3}

Few tips which may help a child in depression

- Talk more
- Encourage them to be physically active.
- Do not blame or compare different children
- Set small goals, because children with both diabetes and depression may have less energy.

If the symptoms persist, encourage them to talk to their doctor and visit a specialist for professional help

1. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC369091/> accessed on 14th Feb 2. Goldston DB, Kelley AE, Robinson DM, Daniel SS, Smith JA, Schwartz RP, Loretti W, Hill C. Suicidal ideation and behavior and noncompliance with the medical regimen among diabetic adolescents. / Am Acad Child Adolesc Psychiatry 1997;36:1528- 36. 3. Kovacs M, Obrsky DS, Goldston D, Drash A. Major depressive disorder in youths with IDDM: a controlled prospective study of course and outcome. Diabetes Care 1997;20(1):45 -51.



Managing any chronic life long illness is quite a challenging task and Type 1 Diabetes is no different. The increased risk for psychiatric disorders associated with Type 1 Diabetes is due to many reasons

- Type 1 Diabetes requires a complex treatment regimen. These tasks are demanding and can be disruptive and stressful. Many children report feeling singled out and different from their peers. This happens more when due to fear and lack of social support, children with Type 1 Diabetes are excluded from friends' birthday parties, summer camps and sometimes even sports activities. For all of these reasons, it is no surprise that children with diabetes have a higher risk of developing depression, anxiety, and psychological challenges than children without diabetes .
- There can be many negative feelings that are directly related to diabetes. E.g. – Desire for a very strict blood glucose control and feeling of extreme frustration with a slight change in blood glucose levels, feeling tired by all the daily management tasks, or feeling isolated in the diabetes experience.
- It has been observed at many instances that people living in poor socioeconomic circumstances with inadequate food, shelter, education and health are at increased risk of poor mental health, depression and lower subjective well-being . This when coupled with a disease which is a financial liability can increase the chance of poor mental health.

Signs and Symptoms of Depression

Signs of depression can include sadness, lethargy, disturbed sleep (too much or too little), disturbed appetite (too much or too little), low motivation, not participating in previously enjoyed activities, and thoughts about suicide. For young children, other common symptoms of depression are irritability, anger, tantrums, and aches and pains such as stomach ache or headache.

Diabetes and Depression

Those with higher depressive symptoms, generally have a belief that they cannot control their diabetes. This leads to making of unhealthy decisions because there is a feeling that their actions cannot change the outcome. Finally, depression and depressive symptoms not only relate to negative disease outcomes, but are also related to poor overall functioning and low perceived quality of life.

Steps to Help

1. First step in such a condition to talk to people. Increasing communication in the family and with the family can lead to more perceived emotional support and empathy from both child and parents. This can lead to more positive interactions. It is good to reassure the person , that diabetes can be managed and people with diabetes can thrive in life
2. Social support is also another important factor which can help. Making such child meet others in similar situation also helps in releasing stress. Social support and positive community participation has shown improvement in mental health.
3. Encourage them to do regular exercise. It has been proved that exercise not only helps in managing blood glucose levels but also improves mood .
4. Setting up small goals for such children always help. Rules that are too rigid are more likely to be broken and give a sense of failure. It is good, if you set achievable goals like exercise for two days a week for them or 20% of all readings to be in target range. This may get them a sense of success and help them.
5. It is good to maintain a balanced perspective. Diabetes should not be the only focus, when child comes to you for treatment. It is always good to find ways and let the child do things they love to do or eat rather than completely prohibit it. The main goal should be right growth with good quality of life for children along with managing diabetes.

In summary, the presence of diabetes in a child's life can increase risks for stress and distress in both child and family. These stresses should be assessed and interventions should be in place for their prevention and treatment. If the problems persists, even after all your efforts, then it is essential that mental health care professionals be contacted and right treatment initiated.

Reference

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- II. Hood KK, Huestis S, Maher A, et al. Depressive symptoms in children and adolescents with Type 1 Diabetes: association with diabetes-specific characteristics. *Diabetes Care* 2006; 29: 1389-91.
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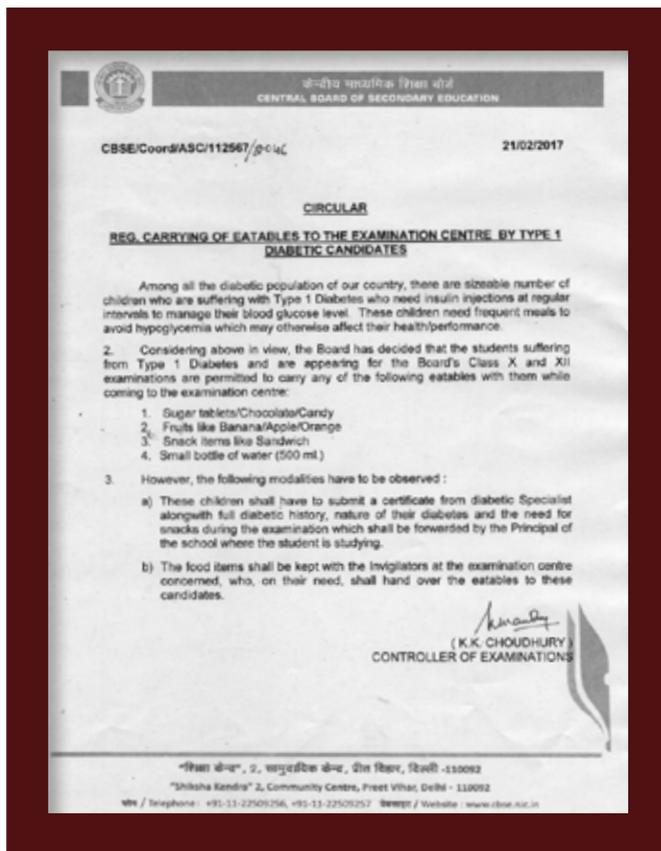
Type 1 champs at school

You will agree that all children need a safe and supportive environment at school and children with diabetes are no exception. Following suggestions from specialist doctors treating children with Type 1 Diabetes, the CDiC group has initiated a campaign titled "Type 1 Champs at School" in the year 2015. Since all children spend most of their active wakeful time in school under their teachers' tutelage, we believe that their understanding and awareness on some key symptoms and a few tips in managing children with Type 1 Diabetes will go a long way in helping them lead a very normal life at school. We have reached more than 15000 teachers till now.

The Central Board of Secondary Education (CBSE) has officially announced that students with type-1 diabetes will now be allowed to take a mid-exam snack during the class 10 and 12 board exams. This move came after considering the study results of the Chairperson of the Delhi Diabetes Research Centre, Dr Ashok Jhingan – Centre head of one of the Delhi CDiC centres. The study was conducted on Kendriya Vidyalaya students. As a part of the study, four Kendriya Vidyalaya schools had allowed the students with Type 1 Diabetes to have mid-exam snacks.

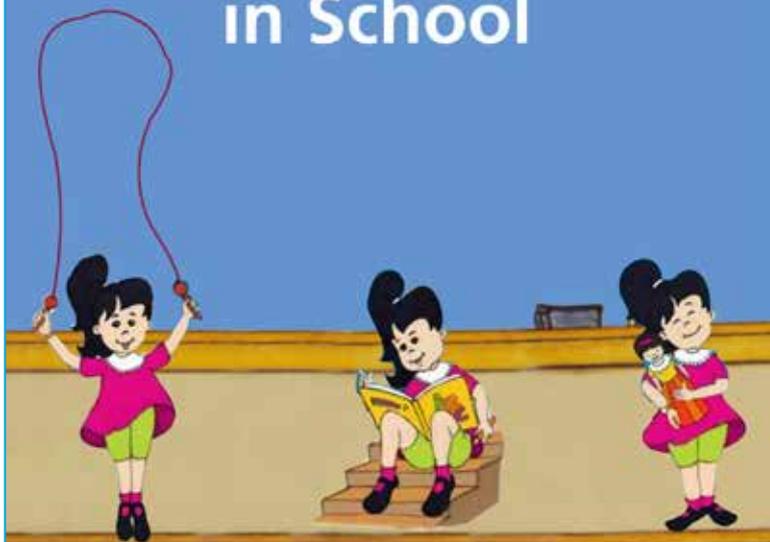
According to the study many students leave the examination hall early due to issues such as hypoglycaemia. Usually student suffering from Type 1 Diabetes experience irritability, headaches and loss of concentration due to low sugar levels. Dr Jhingan has further added that the performance of such students drops down after 11 am during a three-hour-long exam, which starts at 10 am, which can be prevented by taking a mid-morning snack.

We thank Dr Ashok Jhingan and each one of you for your support and urge you to create awareness among all schools and teachers, so that more students can benefit.



Thanks a lot for your support for changing diabetes in children.

Talking Diabetes in School



Children with diabetes can excel in any profession that they choose. Help them to aspire big and achieve their dreams.

"Students with diabetes are not different from any other child. With safe and supportive environment they can succeed."

Support children with diabetes, manage diabetes while at school