

# TYPE 1 DIABETES

A SHORT GUIDE FOR PARENTS AND CHILDREN

A guide that will allow you to get to know type 1 diabetes and deal with it with peace of mind from the outset

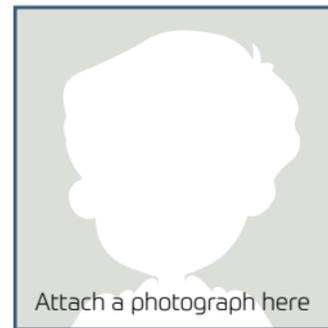


*Lilly*

# CONTENTS



4	Glycaemic control
5	What is glycosylated haemoglobin (HbA1C)?
6	Glycaemia targets
7	Insulin therapy
11	Injection sites
12	Rotating injection areas
14	Injection
16	How to store insulin
17	Hypoglycaemia
20	What to do in cases of hypoglycaemia
22	Severe hypoglycaemia
23	Concomitant conditions
24	Sport
26	School
28	Travel



Enter your personal details on this page

Signature

Name

Surname

Date of birth

Indirizzo di casa

Date of birth

Parent 1

Telephone

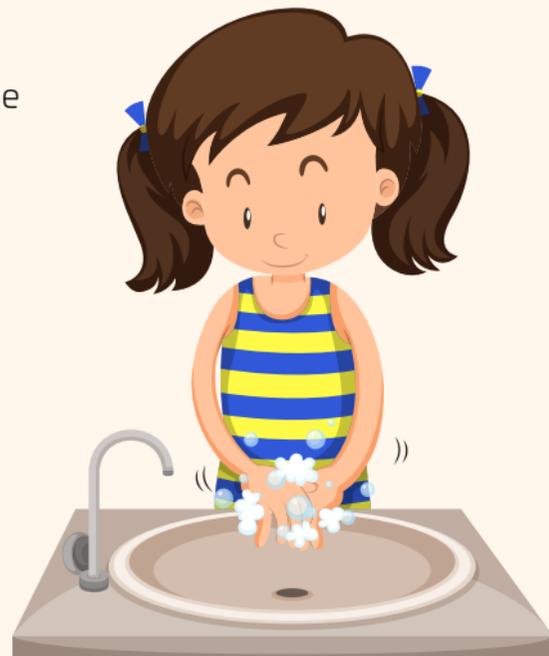
Parent 2

Telephone

## GLYCAEMIC CONTROL

Measure glycaemia correctly and accurately following the instructions you receive from your paediatric diabetes specialist:

- wash your hands well with warm water and dry carefully
- if your hands are cold, wash them with hot water or massage your fingertips
- disinfect your fingertip thoroughly before using the fingerstick
- allow the first drop of blood to come out and then dry it off
- allow the second drop of blood to come out, bring it close to the strip and wait for the result to appear
- never prick the same fingertip
- enter the glycaemia value in the diary



## WHAT IS GLYCATED HAEMOGLOBIN (HBA1C)?

It is the parameter that evaluates the mean glycaemia trend over the past 2-3 months. A blood test is needed to discover this value.



## GLYCAEMIA TARGETS

Monitoring blood sugar levels (glycaemia) is important. Establish the most appropriate glycaemia target with your doctor.

Recommended glycaemia target:

- to achieve a fasting glycaemia of between 70 and 130 mg/dl and a level after meals of between 90 and 180 mg/dl<sup>1</sup>
- to achieve a glycosylated haemoglobin of less than 7.0% (53 mmol/mol, mean glycaemia less than 130 mg/dl)<sup>1</sup>
- it is important to learn to live with diabetes without altering daily habits. In order to do so, you need to learn how to manage it properly yourself



Parameters can vary with age.

**Older children or adolescents:**

- Fasting glycaemia before meals 70-130 mg/dl<sup>1</sup>
- Glycaemia 1-2 hours after a meal 90-180 mg/dl<sup>1</sup>
- Glycosylated haemoglobin less than 7.0%<sup>1</sup>

Higher glycaemia and HbA1C values are tolerated in children under 6 years old.<sup>2</sup>

## INSULIN THERAPY

Patients with type 1 diabetes need insulin treatment from onset, as they do not respond to other treatments because they are unable to produce insulin.

Insulin is injected into the subcutaneous tissue using syringes or pens with very fine needles.

When starting treatment with insulin, it is important to have the following material to hand:

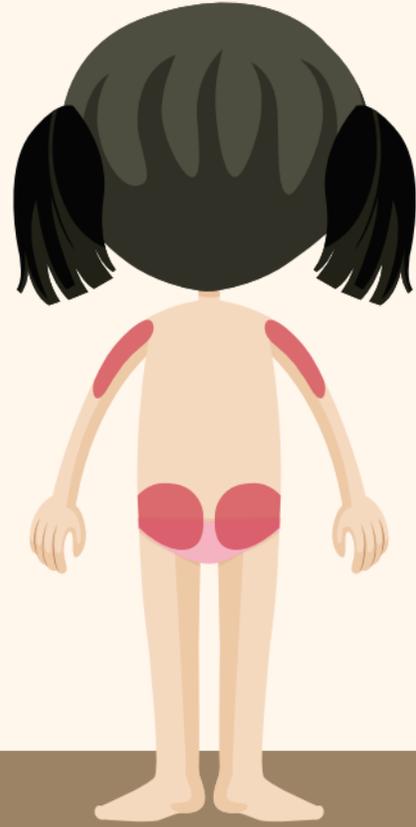
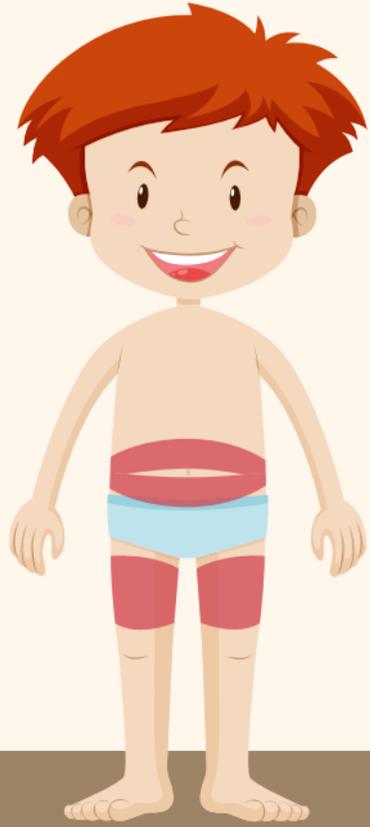
- disinfectant
- spare needles
- glucose meter
- cotton wool



- **Needle safety**

Use a new needle for each injection.

Always dispose of the needle with its cap on and never discard together with normal refuse.



## INJECTION SITES

For insulin to be absorbed correctly, it must be injected under the skin, the sites most commonly used are:

- **abdomen**
- **front/side of the thigh**
- **buttocks**
- **side of the arm**



## ROTATING INJECTION AREAS

It is preferable to rotate the injection area used in order to prevent the formation of bruises and lipodystrophy (accumulation of subcutaneous fat that makes insulin absorption more difficult and irregular), which appear following repeated injections into the same point.

When lipodystrophy occurs, avoid using the area until it returns to normal.

The injection site may bleed or bruise, this may happen occasionally to anyone.

If it does, remember that the insulin may enter the bloodstream in massive quantities and therefore it is best not to wait too long between administration and the start of the meal.



It is also advisable to use the same site at the same time of day, to allow more regular absorption of insulin.

- **Abdomen and arms** give faster absorption (more indicated before meals with rapid-acting insulin or analogue insulins, especially if glycaemia is high).
- **Buttocks and thighs** give slower absorption (more indicated for long-acting insulin).

## INJECTION

- Disinfect the injection site
- After inserting the needle into the subcutaneous tissue, inject the insulin by pressing the plunger all the way down
- Do not massage the injection site
- Avoid hot baths or showers after injection (as they could increase absorption rate)
- There is no fixed dose of insulin
- The dose should be adjusted according to glycaemia, carbohydrate content of meals and physical activity. Your paediatric diabetes specialist will tell you how and when to change your dose



## HOW TO STORE INSULIN

Store spare insulin in the refrigerator, taking care it does not freeze.

Only the insulin being used may stay at room temperature, but away from sunlight and sources of heat. Never use insulin after the expiry date.



## HYPOGLYCAEMIA

Hypoglycaemia occurs when glucose drops below 70 mg/dl. It is essential to recognise this quickly. The most common symptoms are: hunger, tremors, irritability, tachycardia (fast heart rate), increased sweating, dizziness, drowsiness, confusion, difficulty speaking, a feeling of anxiety or weakness.



Hypoglycaemia may occur for several reasons: meals with a low carbohydrate content or that are delayed or skipped; excessive doses of insulin, strenuous exercise.

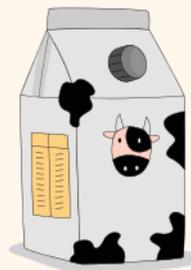
Hypoglycaemia may occur even when sleeping. If it does, the child may have nightmares or wake up sweating or feeling tired, irritable or confused.



## WHAT TO DO IN CASES OF HYPOGLYCAEMIA

In the event of mild/moderate hypoglycaemia (less than 70 mg/dl), to quickly bring glycaemia back to a normal level, simple sugars should be taken, preferably glucose (liquid glucose formulations, sugar tablet) at a dosage of 0.3 g/kg.<sup>4</sup>

- If sugars other than glucose (sucrose, fructose) are taken, the action times vary. Glucose acts more quickly than sucrose or other types of simple sugars.<sup>4</sup>
- Simple sugars are associated with fats (sweets, milk, chocolate).<sup>4</sup>



After 15-20 minutes from intake, check glycaemia again: if it is greater than or equal to 80 mg/dl, the hypoglycaemia is resolved, otherwise take the same amount of sugar again.

## SEVERE HYPOGLYCAEMIA



In rare cases of severe hypoglycaemia (when another person's help is required or when carbohydrates cannot be administered by mouth), it is important to always have glucagone handy to be administered by intramuscular injection.

Glucagone is contained in an orange kit provided by your paediatric diabetes specialist.

For babies and children weighing less than 25 kg, administer 1/2 an ampoule.<sup>4</sup>

For babies and children weighing more than 25 kg, administer a whole ampoule.<sup>4</sup>

## CONCOMITANT CONDITIONS

In the event of concomitant conditions (fever, influenza, gastroenteritis, etc.) diabetic children must take all the medications their doctor prescribes. Some medications may favour hyperglycaemia and the dose of insulin will need to be adjusted accordingly.

### It is important to:

- Never completely suspend insulin.
- Adjust doses (by increasing or decreasing them) according to the glycaemia levels measured.
- Monitor glycaemia and ketones more often, about once every 3 – 4 hours (including night-time)

## SPORT

Regular exercise is essential for the treatment of diabetes, it maintains good cardiocirculatory and respiratory function, increases muscle strength, reduces blood triglyceride and cholesterol levels and reduces daily insulin intake, by improving sensitivity to insulin.

It is essential to adjust the dose of insulin and sugar intake in order to reduce the risk of hypoglycaemia or hyperglycaemia during exercise.

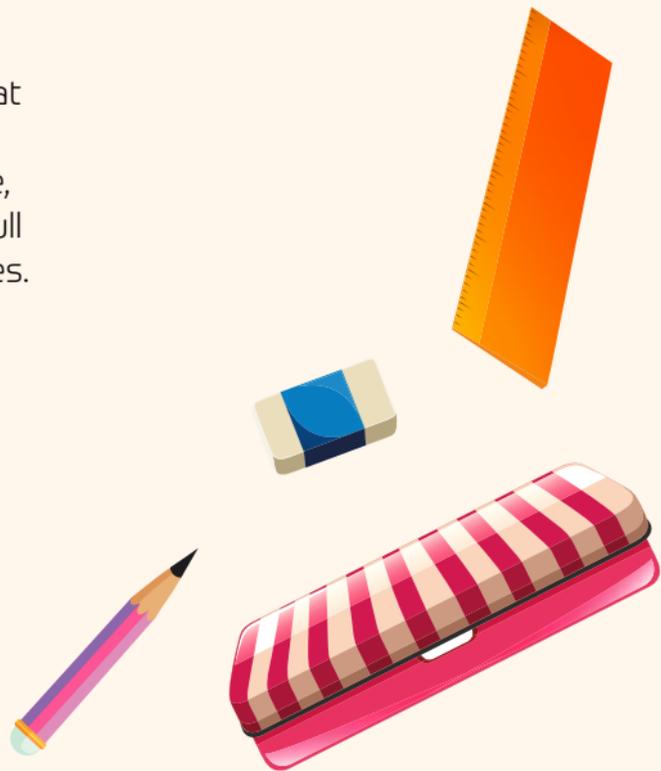
No sports are prohibited.



However, special care is required when practising sports such as: martial arts, underwater sports, boxing, violent sports and all those involving exposure to extreme environmental conditions, risks connected to the use of mechanical equipment or significant injuries. Instructors, coaches and teammates should be aware if a child is diabetic, so that they can provide help if needed.

## SCHOOL

School staff must be aware if a child is diabetic so that they can help out if necessary. If glycaemia is properly monitored during school time, there is no reason why a diabetic child cannot take full part in school activities together with their classmates.



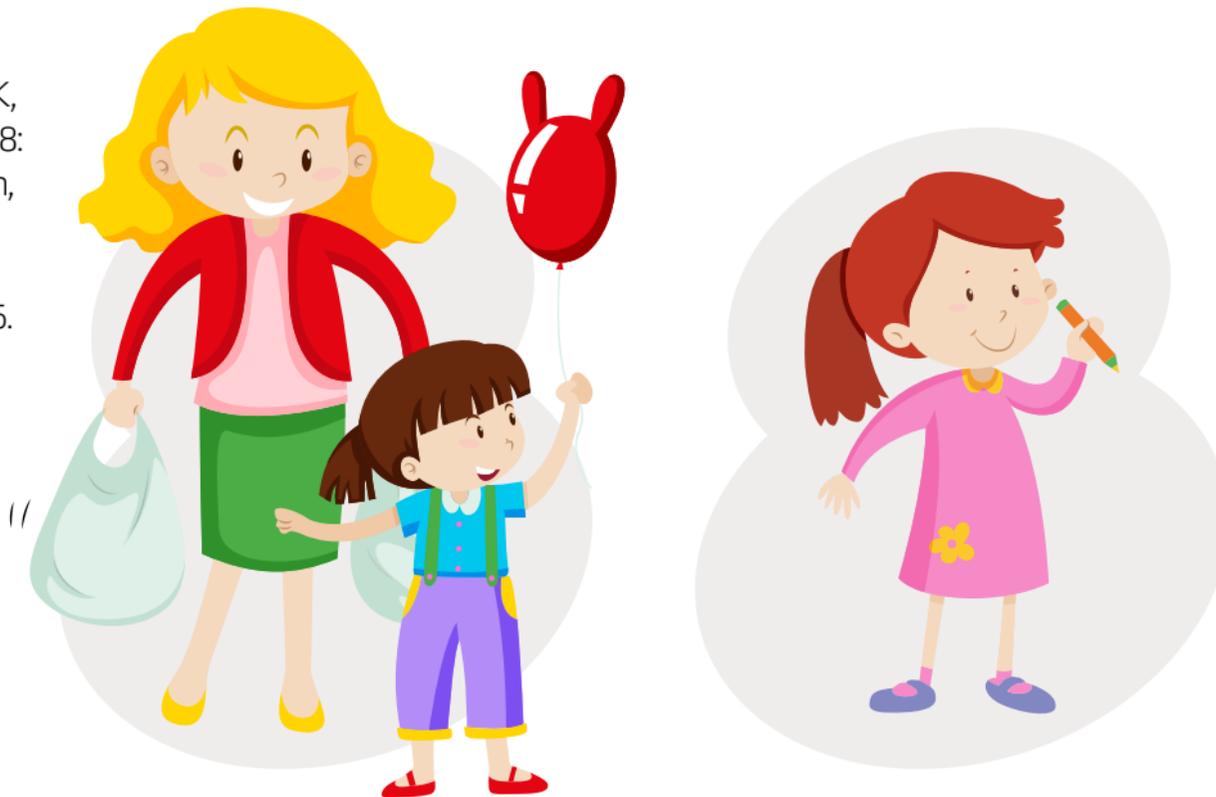
## TRAVEL

It is important to bear in mind possible time changes. Ask your paediatric diabetes specialist for advice on how to adapt insulin regimens in such cases. Always take more material than you would expect to need for the time you are away. When travelling by plane, do NOT carry insulin in your suitcase, always carry it in your hand luggage: the low temperatures in the hold may cause the insulin to freeze, which would make it unusable. Remember to ask your paediatric diabetes specialist for a medical certificate so that you are allowed to take on board all the material you need to measure glycaemia and administer insulin.



## REFERENCES

- 1) DiMeglio LA, Acerini CL, Codner E, Craig ME, Hofer SE, Pillay K, Maahs DM. ISPAD Clinical Practice Consensus Guidelines 2018: Glycemic control targets and glucose monitoring for children, adolescents, and young adults with diabetes. *Pediatr Diabetes*. 2018 Oct;19 Suppl 27:105-114.
- 2) SID-AMD Standard italiani per la cura del diabete mellito 2016.
- 3) Beltramello, Manicardi, Trevisan, TRIALOGUE la gestione dell'iperglicemia in area medica. Istruzioni per l'uso. *Il Giornale di AMD* 2012; 15:93-100.
- 4) Raccomandazioni SIEDP per la prevenzione e la gestione delle ipoglicemie nel diabete di tipo 1 in età pediatrica - *Acta Biomed.* - Vol. 89 - Quad. 1 - Aprile 2018.



## NOTES

---

---

---

---

---

---

---

---

---

---

# TYPE 1 DIABETES

A SHORT GUIDE FOR PARENTS AND CHILDREN

A guide that will allow you to get to know  
type 1 diabetes and deal  
with it with peace of mind  
from the outset

