

Type 1 Diabetes

Pediatric Handout

This survival guide has been compiled by Dr David Segal and Beverley Davey



Dear Parent's and child

Your child has been newly diagnosed with type 1 diabetes and we are aware that you may be feeling emotional, confused and shocked about the diagnosis and may have many questions about what is happening and where to go from here.

Everything that you will need to know about diabetes and managing it will come in time but for now we will be teaching you the basics to manage your child's diabetes in the next few days.

The only important things that you will need to know how to do in the next few days is:

1. Basic understanding of the concepts of diabetes
2. How to test your child's blood glucose levels on a blood glucose meter
3. How to give an insulin injection
4. How to recognize and treat low blood glucose
5. How to test and treat ketones

The rest of the information regarding the diagnosis will be done in follow up appointments in the next few days and weeks and you will be in daily telephonic contact with the doctor or your educator.

There is a lot to learn about managing your child's diabetes in the beginning and you cannot possibly learn it all in one day. Your child is unique and you will learn in time how diet, exercise and different life situations affect your child's blood sugar levels.

YOUR CHILD IS FIRST AND FOREMOST STILL A CHILD BEFORE THEY HAVE DIABETES AND DIABETES NEEDS TO FIT INTO THEIR LIFESTYLE NOT THE OTHER WAY ROUND.

Diabetes is your new partner in life, even if it's an unwelcome one. It is okay to feel angry, sad, resistant and even guilty. These are normal emotions and will ease with time. Most importantly one needs to live with diabetes and not fight it. A positive outlook and active management bring's about good long term results. Every year we are closer to a cure and the tools and knowledge we have to manage diabetes improve.

You and your child are not alone in managing this condition, of course you have to do all the daily working in managing good blood glucose control, but our diabetes team will help you every step of the way.

Regular contact with the team is essential.

This manual is designed to help you with all the basic survival tools to look after your child, but each day will be a learning experience.

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DIABETES

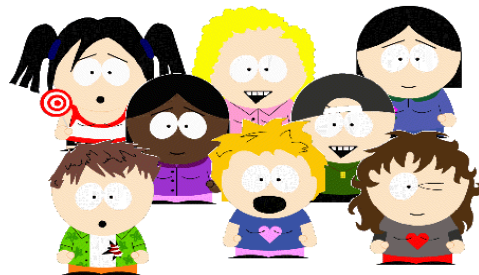
Simply defined it is lack of insulin secreted from the pancreas, resulting in high levels of sugar (glucose) in the blood.

There are 2 main types of diabetes

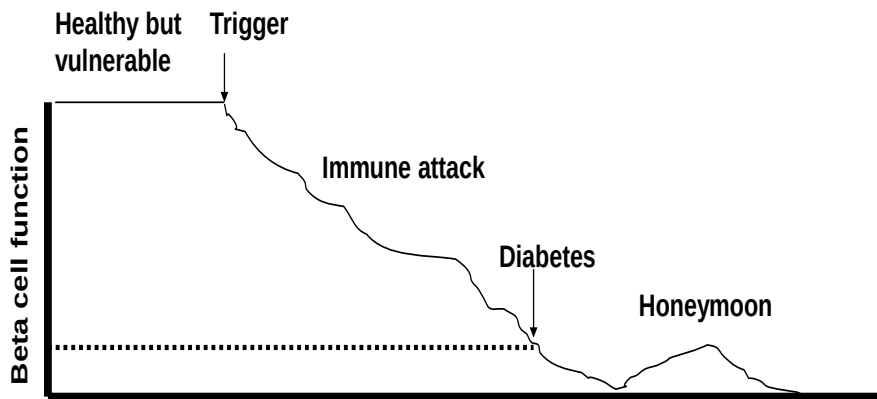
TYPE 1

TYPE 2

Insulin dependant Autoimmune Condition	Lifestyle or oral medication initially but later may need insulin
Usually in childhood and early adulthood	Adulthood and occasionally in children
Pancreas has stopped producing insulin	Pancreas produces too little insulin and the body does not use the insulin effectively
Thin body type	Large body type
Sudden onset of symptoms - Excessive Thirst - Frequent Urination - Weight loss - Tiredness - Blurred vision	Condition may be present for many years without being aware or without any symptoms.
Treatment: - Insulin injections - Minimum of 4 sugar checks daily - Healthy meal plan and exercise	Treatment: - Oral medication and or insulin - Lifestyle changes- diet and exercise - Weightloss



WHAT HAPPENS IN THE BODY AND WHAT DOES THIS MEAN FOR YOU AND YOUR CHILD?



Diabetes develops gradually, the beta-cell failure occurs over many months or years. There is a “genetic predisposition” (inherited factor) that needs to be present for the process to start and a viral infection can be the external trigger required to start the immune attack.

IT IS NOT CAUSED BY EATING OR DRINKING TOO MUCH SUGAR.

Your Pancreas



When your child has diabetes it means that they have too much glucose (sugar) in their blood.

The food your child eats, especially carbohydrates are broken down into glucose and stored in their cells for energy now or later so that your child can perform their daily activities like, learning, running, swimming and playing and more importantly having fun. Your child will still be able to perform all these activities as they did before.

You or your child did not do anything to cause diabetes. It is not caused by eating or drinking too much sugar. Sometimes a viral infection can trigger diabetes in some children, but you could not have stopped diabetes from happening.

Diabetes is not currently curable; however with proper management such as insulin injections and blood glucose testing, proper meal plans and regular exercise your child can have a normal long happy life, both physically and emotionally.

BLOOD GLUCOSE METABOLISIM AND DIABETES

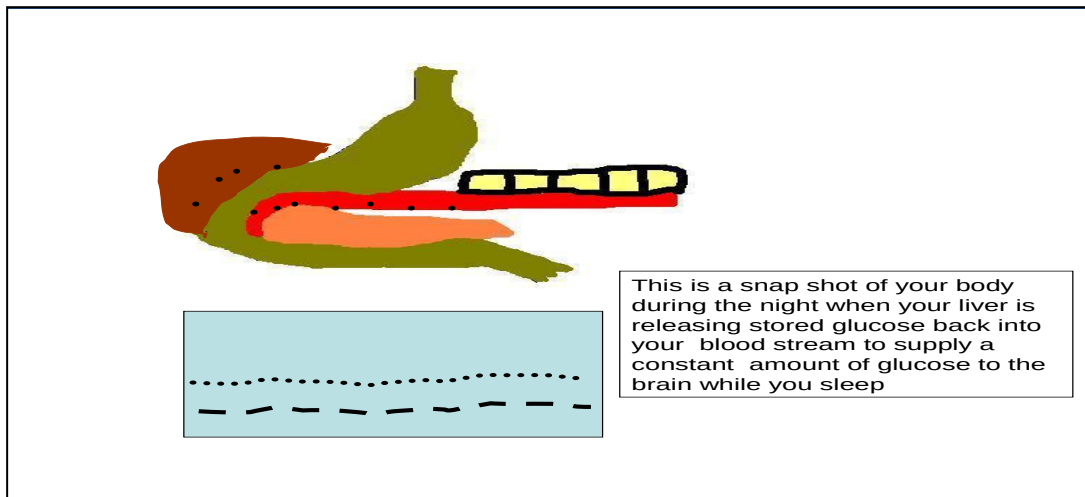
Your child should be eating meals that are balanced with carbohydrates (sugars and starches), fats and protein (mostly meat). Your body normally processes the food and in particular the carbohydrate you eat in the following sequence:

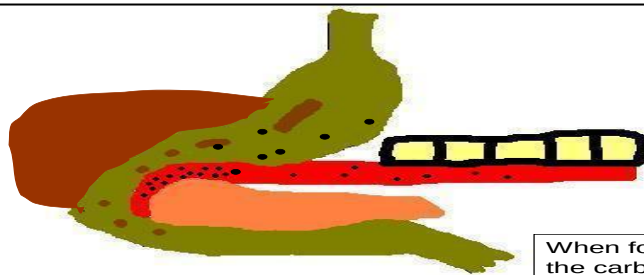
Carbohydrates are broken down in your child's stomach, converted to glucose and absorbed into the blood stream as one of the major sources of energy for the body.

The pancreas senses the rise in blood glucose levels and secretes the right amount of insulin to move the glucose out of the blood stream into their cells. Insulin's function in the body is to direct the storage and use of glucose. Insulin directs the uptake of glucose into the cells either to meet immediate energy needs or to store it for later use. This insulin is released in bursts at meal and snack times. In between meals and during fasting low levels of insulin regulate the amount of glucose produced from the liver (your body's main glucose store).

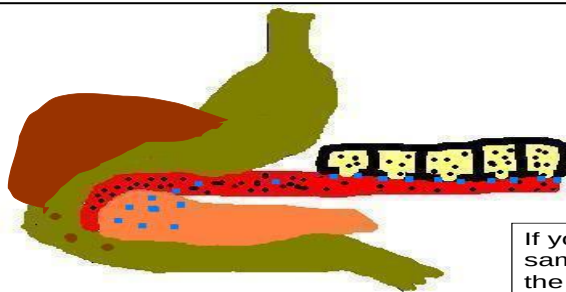
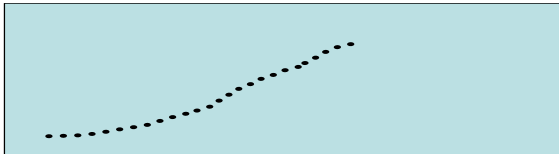
Quite simply insulin is secreted every time we eat and a slow release in the background between meals.

As your child does not produce insulin anymore they rely on their insulin injections to provide meal time coverage and the background insulin needs. This is usually achieved by using 2 or 3 kinds of insulin, usually a long acting (background insulin) and a rapid acting insulin (meal time insulin).

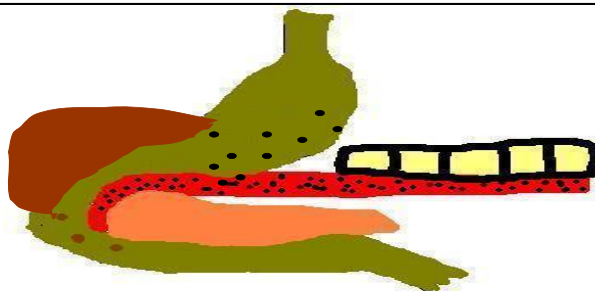
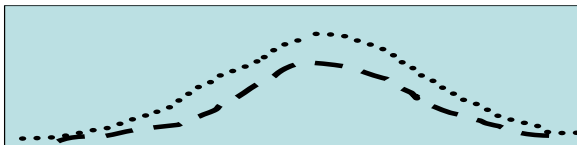




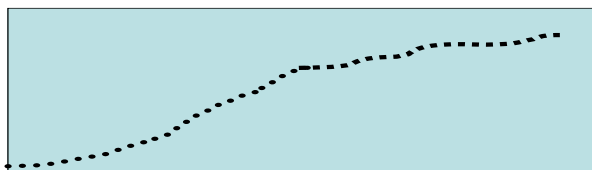
When food enters your stomach, the carbohydrates get broken down into glucose and the glucose gets absorbed into your blood stream and your blood glucose level starts rising.



If your pancreas is working, it samples the amount of glucose in the blood stream and produces the right amount of insulin and releases the insulin into the blood stream. The insulin opens the cells and allows the sugar in and blood sugar will come down. This process is repeated every time you eat carbohydrates.



If you do not have insulin you have no problem getting the carbohydrate into the blood stream but have no way of opening up the cells to let the sugar in and your blood sugar levels stay high.



When the sugar remains in your blood stream and cannot move into your cells because of a lack of insulin the following happens:

- High blood sugar gets filtered by the kidneys and glucose ends up in the urine, therefore it causes increased urine flow and your child will urinate a lot and therefore drink a lot to catch up.
- When your body cannot use glucose for energy it will find another source of energy and you will get these other sources of energy from your body breaking down your muscle and you will lose weight and feel weak and tired and you will also break down fat and produce ketones which makes you sick.

Diabetes and Food

Food Groups

There are 5 main food groups that make up a balanced healthy diet in order for your child's body to get all the vitamins, minerals and nutrients they require to function at its optimum.

The main groups are as follows:

1. Bread, Rice, cereals and pasta
2. Fruit and Vegetables
3. Milk, yogurt and cheese
4. Meat, poultry, eggs, fish, beans, legumes and nuts
5. Fats and oils



The main food groups can be divided into 3 nutrient groups which have individual effects on the body.

1. **Proteins** – These nutrients are our bodies' growth foods and have little effect on the blood glucose levels. Half of the protein we eat gets converted to glucose over a long period of time so it has a gradual rise on the blood glucose levels. These foods make excellent snacks between meals and will not require extra insulin, further more it can be eaten when blood glucose values are high in order to prevent them from raising further.

2. **Fats** – These foods are also energy foods in the body; however they have twice the amount of calories than carbohydrates and therefore are to be kept to a minimum, in order to protect the heart and other vital organs. Fats are needed for cell growth and protection for organs and are a very important part in children's growth and development.

There are different types of fats:

- Unsaturated fats – Mainly from plants/vegetables and fish oils – positive health benefits.
- Saturated fats – Mainly animal sources - more negative effects on health.

3. **Carbohydrates** -These nutrients are the bodies' main supply of energy. They are the foods that have a significant effect on blood glucose values. They raise the blood glucose values and are the foods groups that need to be kept under control in order to manage diabetes.

All carbohydrates are broken down to glucose as their final form of energy for the body.

The rate of absorption of glucose in and out of the blood stream is called the glycaemia index (GI).

- High GI (HGI) foods are absorbed quickly into the blood stream and tend to raise blood glucose levels quickly. Range - more than 70
These foods are great to have to for lows as well as during or after endurance exercises (>90min)
- Intermediate GI (IGI) foods are absorbed at a gradual rate and have less of a rise on the blood glucose values. Range – 56-69
These foods are good to have before or after moderate to strenuous aerobic exercise (>60min)
- Low GI foods (LGI) are absorbed very slowly into the blood stream and tend to keep blood glucose values more stable for longer periods than HGI and IGI foods. Range – 0-55

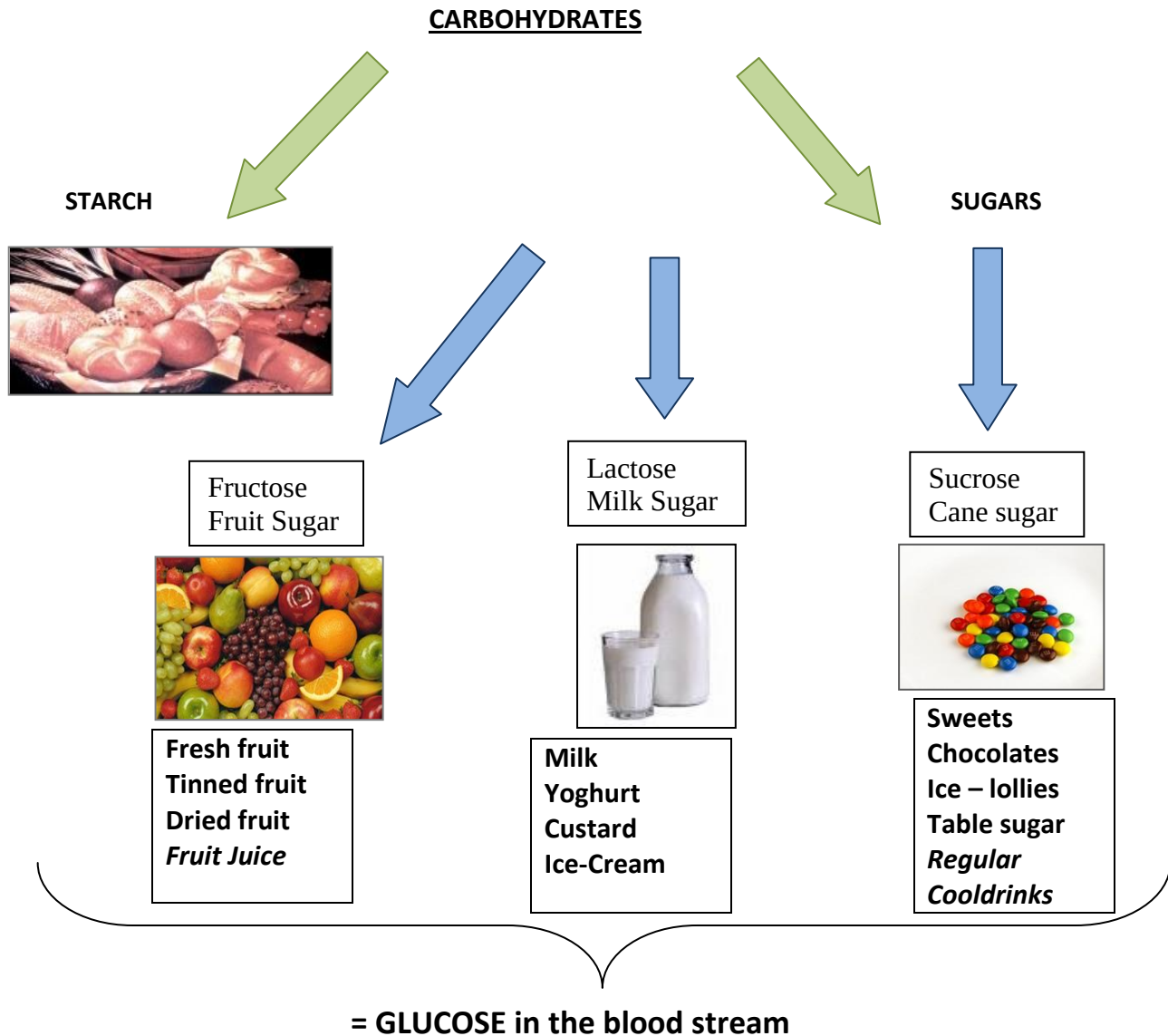
These foods are good to have before exercise and as bedtime snacks.

There are different ways to measure carbohydrates and relate them to the effect they will have on your blood glucose level, this concept is called carbohydrate counting and is a very useful tool to use. The following pictures are a few examples of the main carbohydrates consumed and they are all measured in 1 carbohydrate value.

1 Carbohydrate = 15g

Carbohydrates are divided in two main groups and the sugar group is further divided in 3 groups.

Most foods have nutritional information on the packaging, so these are easy to read and determine. Below are a few typical foods that have been measured in 1 carbohydrate value they may not necessarily have nutritional information on them and they may need to be learned with time.



Diabetic products are not usually encouraged as they are poorly marketed, costly and they only remove sucrose from the product but still have other glucose products in them, therefore they are not completely free (Unless the total carbs on the nutritional label says 0 grams) and will still raise the blood glucose levels.

Other carbohydrate foods and handy measures

		
DAIRY	Approximate weight	Handy measure
Milk (skimmed, low fat or full cream)	250 ml	1 cup
Fat free yoghurt (plain or artificially sweetened flavoured yoghurt)	250 ml	1 cup
Buttermilk	250 ml	1 cup
Inkomazi (maas), Mageu	250 ml	1 cup
Ice cream, full fat		½ cup
		
CEREALS	Approximate weight	Handy measure
Bran cereals (High fibre / All bran)	25 g	½ cup
Muesli	30 g	½ cup
Pronutro	25 g	¼ cup
Other cereals (Cornflakes, Strawberry pops, Choco's, Frosties etc.)	20 g	½ cup
Soft mieliemeal porridge	100g	½ cup
Stiff mieliemeal porridge	60 g	⅓ cup
Crumbly mieliemeal porridge	45 g	¼ cup
Oats	100g	½ cup
Maltabella porridge	100 g	½ cup
		
STARCHES	Approximate weight	Handy measure
Pasta (cooked)	100 g	½ cup
Rice (Basmati, white, brown, cooked)	50 g	½ cup
Samp	75 g	½ cup
Sweet potato	100 g	½ cup
Baby potatoes (baked or boiled)	100 g	3 small potatoes
Potatoes (mashed, boiled, jacket)	100 g	½ cup
Legumes (baked beans, uncooked lentils, bean salad)	100 g	1 cup
		
BREAD/FLOUR	Approximate weight	Handy measure
Bread (white, brown, whole-wheat, rye)	15 g	1 slice
Bread rolls	30 g	Each half
Provita, Cream crackers	20 g	3 biscuits
Ryvita, Rice cakes	20 g	2 biscuits



FRUIT	Approximate weight	Handy measure
Apple, banana, orange,		1 small
Plums		3 small
Apricots		4 whole
Pear		1 large
Grapefruit		½ large
Naartjie		1 small
Sweet melon		½ cup (cubes)
Watermelon		1 slice
Strawberries	1 large strawberry is 1g	
Berries	1 cup	
FRUIT JUICE	Approximate weight	Handy measure
All Ceres, Liquifruit or fresh fruit juices – ONLY FOR HYPOS	125 ml only	½ cup only
		
VEGETABLES	Approximate weight	Handy measure
Butternut, squash, pumpkin, peas, carrots and corn	150 g	1 – 1 ½ cup
		
SNACKS	Approximate weight	Handy measure
Biscuits eg. Marie, Tennis, Boudoir		3
Biscuits with filling		2
Crackers (savoury, salty)	24 g	3-4
Marshmallows		3
Jelly tots	40 g	1 small packet
Hard boiled sweets eg. Sparkles		5
Chocolate, plain		3-4 blocks
Custard, using custard powder (with sweetener and low fat milk)		½ cup
Jelly, regular with water		½ cup
Ice – cream		3 scoops
Potato crisps	15-30 g	1 small packet
Popcorn	250 ml	1 cup

Your child's Diet needs to be individualised and you should see a dietician who understands children with diabetes to structure something for your child individually.

- The Carbohydrate content and the amount as well as the timing is very important.
- Sugar is allowed in small to moderate amounts and will make up part of your carb value at meals.
- Low GI meals should NOT form the only basis of your meal plan, it is a tool.
- Always remember everything in moderation and stick to healthy eating principals.
- Juices to drink – Sweeto and drink o pop or Lecol light as well as diet or zero drinks.

What are Proteins?

Proteins get broken down into glucose very slowly in the blood stream and only 50-60% of protein gets converted to Glucose, making it an ideal food for your child to eat as a snack or as the main portion of a meal.

List

- Nuts (Limited)
- Peanuts (Limited)
- Meat

Chicken

Fish / Tuna

Fish Fingers x4

Vienna's X 4

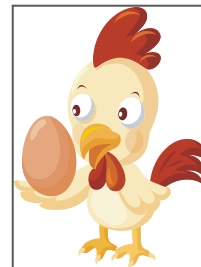
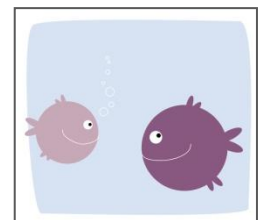
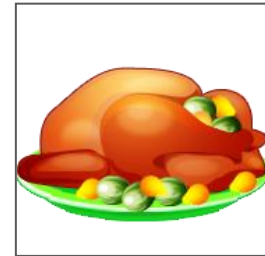
Red Meat – Boereworse, chops, mince steak

Cold Meat and sausages

Biltong

Dri-Worse

- Cheese – Kiri, Melrose or normal tussers or cheddar
- Eggs – boiled or scrambled



Ideas for protein snacks or meals:

- Stir fries without the rice or noodles
- Omelettes
- They can design their own Snack platter
- Protein salads – ie chicken or tuna salad

Other free foods that will have little effect on Blood glucose values:

- Salad things:
i.e., Cucumber, carrots, cherry tomatoes, olives, gerkins etc.
- Sugar free Jelly and Sweeto homemade ice lollies





TESTING AND BLOOD GLUCOSE TARGETS



Testing your child's blood glucose levels regularly, will help you to achieve daily blood glucose targets and it is your only tool to help you administer the correct dose of insulin or see what changes need to be made to food or exercise etc.

Useful tips

- Always wash and dry your hands before you test. Any food on your hands could be read as blood glucose and give you a false reading
- Don't use alcohol or wet wipes this will also affect the reading
- You can use the same lancet over again for about 1-2 weeks
- Use the sides of your fingers to test, it's less sensitive
- Don't test on only one finger – rotate them



When to test

- Before each meal and at bedtime, and at any other time you think you may be low or very high. Testing too much is not better than 3-4 x daily. Unless you are sick, then it necessary for you to test more often, especially when you have ketones, then you will need to test hourly.
- 3-4 days of a minimum of 3-4 test are needed for the health care team to help you make adjustments and understand how food, exercise and insulin should be adjusted
- If you are having problems with higher or lower blood sugars email or fax through the last 3-4 days results and insulin doses being used and we can help you make adjustments.

Insulin Profiles



Insulin	Starts Working	Main Effect	All gone
Rapid acting Novorapid, Humalog, Apidra	10-15 min	1-2 Hours	4-6 Hours
Regular acting Humlin –R, Biosulin R	30-60min	3-4 Hours	6-8 Hours
Intermediate acting Humlin N, Protophane, Biosulin N	1-2 Hours	4-6 hours	8-12 Hours
Long acting Levemir, Lantus, Biosulin L	1-2 Hours 1-4 Hours	Relatively peak less 6-8 Hours	20 - 24 Hours 20-22 Hours

HbA1c

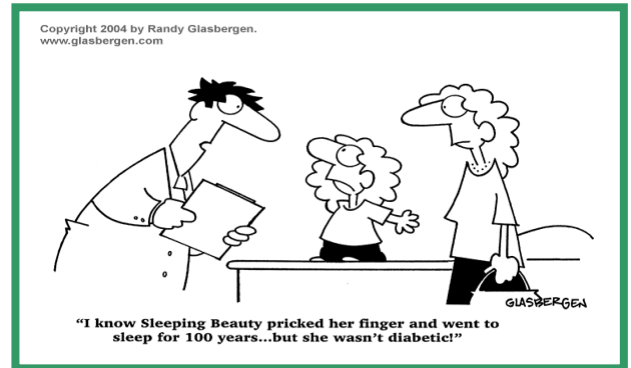
Haemoglobin A1c – Average blood glucose for 3 months

The risk of long term diabetes complications is related to overall blood glucose control that is above ranges for many years.

Complications are obviously one of your concerns as a parent, but if you and your child work hard at getting the blood glucose values as close to target as often as possible so complications can be prevented.

The HbA1c is a way to measure this; it looks at the amount of glucose attached to your red blood cells. This is measured every 3 months.

Children, especially very young children have different targets to adults as they don't always detect their low blood glucose values and very low HbA1c's are not suitable for them and they are individualized to the child.



INSULIN INJECTIONS AND STORAGE

INSULIN INJECTIONS

- Select a site for injecting
- The area's to inject are in the leg, stomach, bum and arm.
- Site rotation is really important. Injecting in the same area too often will cause scar tissue and lumps in the area and the insulin absorption is then unpredictable and poor. Moving injection sites is not negotiable.



Injection Technique

Step 1		-Pinch up the skin -Push the needle in at a 90 degree angle. -45 degree for longer needles (12mm)
Step 2		-Push the plunger all the way down – if using pens, hold for 10 sec and if using syringes hold for 2 sec.
Step 3		-Let go of your pinch before pulling out the needle, this will prevent the insulin from leaking out.

Storage of insulin

- The monthly supply of insulin should be stored in the fridge
(It should not freeze)
- Insulin should not be left in warm car or in direct sun where it gets heated.
- **GET NEW INSULIN WHEN:**
 - Your cloudy insulin is clumped and doesn't mix well
 - If you accidentally inject clear insulin into cloudy insulin or visa versa
 - If the insulin freezes or gets too hot

Useful tips

- Needles and syringes can be used and changed every 1-2 days
- Occasionally you may get a small blood droplet or bruise after an injection, it means you have nicked a small blood vessel or haven't pinched up enough skin, it is not a major concern but it shouldn't happen frequently – we will look at your technique if it does
- Give positive re-enforcements for injections to those who have difficulty in the beginning - chewing gum, stickers, treat or a cartoon plaster over the area
- Encourage the child to be involved in the injection process – ask them to choose a site or pinch up skin or push the plunger
- Allow the child to give a teddy or doll a injection with a old needle
- If they are having lots of issues with injections or have a severe needle phobia we can use insulin ports to deliver insulin through.

HYPOGLYCEMIA – LOW BLOOD GLUCOSE LEVELS

Any blood glucose value **below 3.5 mmol/l** is considered a low blood glucose value.

For children below 6 years less than 4mmol/l is a low blood glucose value as they tend to not recognise their symptoms or they cannot tell you.

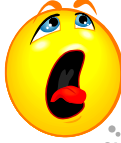
Low blood glucose values can occur at any time, but it is most likely

- Before meals
- During peak action of insulin – usually 2 hours after rapid acting insulin or 4-6 hours after long acting insulin
- During or after exercise
- **Causes of low Blood glucose values**
 - o Delaying or missing meals or snacks
 - o Not eating enough carbohydrates at a meal time
 - o If you have exercised or done a lot of activity
 - o If you took more insulin than your body needs

Most often when you have a low blood glucose value your body will give you warning signs – here are some symptoms, it's also best that you recognise your individual symptoms and treat a low blood glucose values as soon as possible.

DON'T IGNORE YOUR WARNING SIGNS.

Symptoms of low blood glucose values

	<u>Mild</u>	<u>Moderate</u>	<u>Severe</u>	
	Hungry	Confused	Unconscious	
	Shaky/Sweaty	Blurred vision	Seizure	
	Tired/Weak	Restless		
	Pale	Aggressive		
	Dizzy			
	Headache			
	Emotional/Tearful/Anxious			
	Irritable			
	Stomach ache/nausea			

These can also be symptoms of High blood glucose values

Treatment of mild and moderate low blood glucose value

0.3g grams of glucose/Kg will increase BG value by approximately 2 mmol/l

Use any of the following glucose rich foods.

1 FIZZERS (1 fizzer = 9g)

OR **1 GLUCOGEL** OR **2-3 GLUCOSE TABLETS**

(1 glucose tablet 5-6g and 1 glucose gel sachet 10g)

OR **½ GLASS NORMAL COKE** OR **½ FRUIT JUICE**

OR **2-3 X SUPER C'S** (1 super c = 3g)

OR **6 JELLY BABIES**

OR **1-2 SPOONS OF CONDENSED MILK, SYRUP OR HONEY** (More than 2 years)



Please remember fixing a low blood sugar needs time not more food.

Your child will be very hungry when low and will tend to want to eat till feeling better.

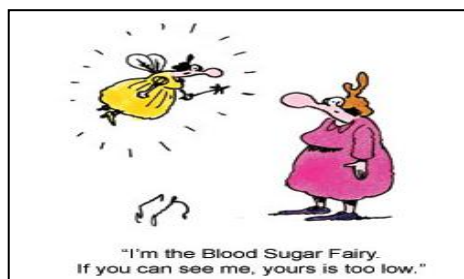
The faster you fix a low with quick acting glucose the better your child will feel.

Don't get into the habit of over treating low blood sugars and getting a high blood sugar thereafter by feeding them too much.

Give the above treatment and recheck blood glucose values again after 15-20 min if they still complain of feeling low.

If still low repeat above foods again and then recheck in further 20 min.

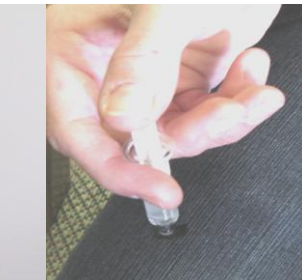
NB Insulin must be given before a meal if your child was low, you will fix the low blood glucose and then give the normal dose of insulin before that meal, you will need insulin to store that food eaten in the cells of the body otherwise the next blood sugar will be high – they will not go low again!



Treatment of Severe low blood glucose value

- If your child is unconscious or having a seizure from a low blood glucose level use Glucagon
- If your child is confused and unable to swallow – rub condensed milk, syrup, honey or glucose syrup onto the gums if that does not raise the blood glucose levels Glucagon needs to be used.

GLUCAGON

Step 1	Step 2	Step 3	Step 4	Step 5
				
Ingredients -1 x hypo (glucagon kit) -1 x pre-filled syringe -1 x vial with powder - Nerves of steel -Cool head (1 or 2)	Open the kit Remove the cap	-Inject contents of syringe into vial and agitate to mix -Turn upside down and withdraw contents of the vial -Inject into thigh (or buttock)		
Use glucagon if unconscious, having a seizure or cannot co-operate with oral glucose Blood sugar levels should be expected to rise in 5-15 minutes Some nausea and even vomiting and headache may follow the injection Give sips of sugar containing fluids as tolerated, advance to a snack once awake				
Dose: weight < 30kg = ½ syringe weight > 30kg = full syringe				

As long as the blood glucose value remains above 5mmol/l your child can sleep.

Blood glucose values need to be checked every 3 hour for next 6 hours after a severe episode.

ALWAYS INFORM YOUR DR OF A SEVERE HYPO.

HYPERGLYCAEMIA – HIGH BLOOD GLUCOSE VALUES

High blood glucose values above target along with high HbA1c's over many years can lead to complications associated with diabetes. Areas that can be damaged from high blood glucose levels are the: eyes, kidneys, heart and feet. The high blood glucose levels damage all the small nerves and arteries to the organs mentioned above, however if you and your child manage your diabetes effectively you will not develop diabetes complications. Brief episodes of high blood sugars are not dangerous but need to be managed.

- Causes

- Too little or no insulin
- Too much Food high in sugar or carbohydrates
- When you are sick or have an infection
- You are less active than usual- spending long hours watching TV, playstation or computer games or travelling.

- Symptoms

- Thirsty
- Tired/ lethargic
- Urinate more often
- Blurry vision
- Warm and flushed
- Headache



- Treatment

- Exercise or activity - Your child should however not exercise when they have Ketones as this will worsen the symptoms.
- Water
- Extra insulin between meals or before meal/snack



SICK DAY MANAGEMENT AND KETONES

When a diabetic child is ill, it is a very unstable time as blood glucose values may fluctuate erratically. They may also spill KETONES into their urine, even if blood glucose values are normal.

Diabetic children need their insulin when they are sick, sometimes even larger doses, even if they do not want to eat, insulin must NEVER be skipped and the types of foods or liquids may need to be adjusted along with the amount of insulin.

THEREFORE, WHEN YOUR CHILD IS SICK ALWAYS:

CHECK KETONES AND BLOOD GLUCOSE LEVELS FREQUENTLY

Your child should avoid exercise when blood glucose levels are high (>15mmol/l) and when they have Ketones- exercise will make the situation worse.

“WHEN YOU ARE SICK PEE ON A STICK”

Encourage your child to eat their usual meal or something from the list below if their stomach is upset or they are having difficulty eating.

Drinks

- Lucozade 75ml
- Fruit juice (unsweetened) 125 ml (1/2 cup)
- Milk 250ml (1 cup)
- Coke or lemonade 200ml

Foods

- Soup
- Jelly and Custard
- Yoghurt
- Biscuits or cereal

If your child is vomiting and there are no Ketones they need to have small sips of fluid every 15 minutes to avoid dehydration. Anti-nausea suppositories can be given every 6 hours, if your child needs a second suppository call your Dr.

We may even use small doses of glucagon every hour to manage the low sugars

Over the counter medicines are okay to take for management of illness including antibiotics

Medicines for fever, pain, decongestants, runny tummy or nausea, coughs and colds may contain small amounts of sugar. This amount of sugar is too small to significantly affect blood sugars. Cortisone and or steroid containing medications **cannot** be taken, they increase Blood glucose levels aggressively the list is below.

Please consult your diabetes doctor if steroid containing medicines have been prescribed

- **Pulmicort**
- **Pulmizone**
- **Celestamine (Antihistamine containing cortisone)**
- **Prelone**
- **Panafcort**

KETONES AND MANAGEMENT

What are Ketones?

In the absence of insulin your body cannot use your glucose for energy provided by the food you eat. Instead fat is broken down for energy and converted to Ketones. Ketones are an acid and there build up makes the blood ph level acidic. If undetected or untreated your child could develop DIABETIC KETOACIDOSIS (DKA), this is a medical emergency and they will need to be hospitalised.

Ketones are checked in the urine or blood

They should be checked whenever your child is:

1. Sick, even if blood glucose levels are normal
2. Nausea and abdominal pain
3. 3 successive blood glucose readings are higher than 15mmol/l.

Early detection and treatment may prevent a hospital admission.

Symptoms include:

- Nausea, abdominal pains and a fruity odour on the breath. These symptoms can be managed at home, using the **COKE/COKE LIGHT REGIMEN**. HOWEVER once your child has the above symptoms but starts to vomit and have difficulty breathing it can no longer be managed at home - the Dr needs to be contacted and your child will need to be admitted.

When Ketones are detected you should contact your Dr, Educator or the 24 hour emergency hot line, so they can advise you on clearing the Ketones.

Sick day protocol- please call the Hotline and follow this protocol



Urine ketones
+ to ++++

★ Sugar free fluids

Blood glucose more than 15mmol/l

Sip on 1 glass of water/ * per hour

Inject fast acting insulin every hour

How many units = weight/10

Check your blood glucose hourly

Check ketones



Urine ketones
+ to ++++

Sugar containing fluids

Blood glucose less than 15mmol/l

Sip on 1 glass sugar containing fluid/hour

Inject fast acting insulin every hour

How many units = weight/10

Check blood glucose hourly

Check ketones

Urine ketones values



Blood Ketones values

Below 0.6 mmol/L
Readings below 0.6 mmol/L are in the normal range.

0.6 to 1.5 mmol/L
Readings between 0.6 and 1.5 mmol/L may indicate the development of a problem that may require medical assistance. Patient should follow healthcare provider's instructions.

Above 1.5 mmol/L
Readings above 1.5 mmol/L indicate your patient may be at risk of developing diabetic ketoacidosis (DKA). Patient should contact a healthcare provider immediately for advice.



DIABETES KIDS CAMPS



Diabetes camps are one of the best experiences that a child with diabetes can have and it is advisable that you allow your child to be involved in this experience, especially when they are newly diagnosed.

We host 4-5 diabetic camps through the year for a weekend.

Camp is a place for your child to learn self-confidence, independence from mom and dad, to be with other kids with diabetes, and simply to have a great time as well as have the opportunity to make lifelong friends.

It's also an excellent opportunity for mom and dad to take a break from diabetes.

What do CAMPERS learn about diabetes being at Camp?

- Ⓢ They are not alone
- Ⓢ How to recognize and treat low and high blood glucose levels
- Ⓢ How to have an active, fun life while living with diabetes
- Ⓢ How to cope with emotional ups and downs of diabetes through friendship and sharing
- Ⓢ Skills of blood glucose checking
- Ⓢ How food choices and activity affect blood glucose levels as well as other recreational activities
- Ⓢ How to accomplish any goal and undertake any activity

The Facilities and facilitators

The camp is just outside of Hekpoort (45 min from JoBurg) at CAMP NELU.

We always use the facilitators of CAMP NELU, Pieter and his team who are excellent with the kids and

Our qualified diabetes team Dr Dave, Bev and Hester and our Diabetes Youth Leaders (DYL)

What do we do at Camp?

We interact with each other, learn teamwork, make friends, survival skills and time to play, be creative and do some rhythm workshop and have lots of

FUN, FUN, FUN!!

You can go to the following web address if you would like

to attend a camp or find out more information

www.youthwithdiabetes.com



Dear Teacher

I have type 1 diabetes. I know this may make you feel scared or worried to have me in your class as there are a lot of misconceptions about my condition.

The purpose of this note is to let you know the implications of diabetes and how it may affect me at school. I would like to explain my diabetes and I am sure you will see that I can lead a normal life just like any other child in your class.

If there are any questions please write them down and I will get my parents or my doctor to answer them for you.

The main dangers that arise from diabetes at school are low blood glucose values or hypoglycemia.

The things that are most likely to cause my blood glucose values to drop are:

- Exercise
- Delaying meals or snacks

The symptoms I may experience in increasing order of severity:

- Shaky
- Weak
- Pale
- Poor concentration/ listless/ irritable
- Confused
- Unresponsive or unconscious

If I experience a low blood glucose value during class I will need to test my blood glucose values and I will need to eat foods that have glucose in them to raise my blood glucose values again.

The following is an example of the pack I will have at school at all times.

The following can be used

1 x FIZZER

OR GLUCOGEL OR 2-3 GLUCOSE TABLETS

OR ½ GLASS NORMAL COKE OR FRUIT JUICE

OR 2-3 X SUPER C'S

OR 6 JELLY BABIES



If I am unconscious or have a seizure from a low blood glucose value I will need to be injected with the following injection called glucagon that will increase my blood glucose values.

GLUCAGON

When I wake up please give me sips of juice or coke and check my blood glucose every 5-10min. If I can tolerate fluids give me ¼ a slice of bread or 2 provitas.

Glucagon needs 15-20 minutes to have its full effect in raising the blood glucose values.

There may be some side effects 30 min after the injection such as:

Nausea,vomiting, bloating and headache.

ALWAYS INFORM MY PARENTS AND OR DR OF A SEVERE HYPO.

Step 1	Step 2	Step 3	Step 4	Step 5
				
Ingredients -1 x hypo (glucagen kit) -1 x pre-filled syringe -1 x vial with powder - Nerves of steel -Cool head (1 or 2)	Open the kit Remove the cap	-Inject contents of syringe into vial and mix -Turn upside down and withdraw contents of the vial -Inject into thigh (or buttock)		
Use glucagon if unconscious, having a seizure or cannot co-operate with oral glucose Blood sugar levels should be expected to rise in 5-15 minutes Some nausea and even vomiting and headache may follow the injection Give sips of sugar containing fluids as tolerated, advance to a snack once awake				
Dose: weight < 30kg = ½ syringe weight > 30kg = full syringe				

Emergency Contact Numbers - Diabetes 24 Hour Hotline
Number-