

SPIN



A STRAIGHT FORWARD PROGRAM FOR INSULIN PUMP NEWCOMERS

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ABOUT THE AUTHORS

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INTRODUCTION TO SPIN

The SPIN is a straightforward approach to understanding and using the insulin pump. You will find that the information in this book builds on what you already know about your diabetes. This approach has helped many children and adolescents that we have worked with at the John Hunter Children's Hospital, Newcastle. In writing this book our aim is to help you quickly adapt to life on the pump, improve your quality of life and better care for your diabetes. When you finish this book, we're sure you will find insulin pumps straightforward.



WHY USE AN INSULIN PUMP?

An insulin pump allows you to change your insulin levels easily and rapidly from moment to moment to match what you are doing. This small battery powered device is programmed to infuse insulin continuously through an infusion line and needle that is placed under the skin every three days. It is easy to program the pump in response to activity levels and food, allowing more stable blood glucose levels without having to rely on eating regularly. For this reason insulin pump therapy is particularly suited to those people that have varied activity levels and eating patterns, such as very young children and teenagers. In young children there are a number of features and methods which can make this treatment a safe and convenient alternative to injections. These include:

- Program locks
- Remote control for boluses
- Modification of clothing to conceal pump
- Preset meal boluses for preschool/school



DISCLAIMER

This book is designed as an educational tool and does not replace the advice of your diabetes team. Diabetes health professionals can offer specific guidance that no book can take the place of and we recommend following their advice.

The authors accept no responsibility for any injury, mishap or loss that may occur as a result of following methods described in this book.

Abbreviations used in this book

BGL	- blood glucose level
DKA	- Diabetic Ketoacidosis
Exchange	- 15 grams of carbohydrate
Hypo	- hypoglycaemia
Pump	- insulin pump
GI	- Glycemic index

Positives about the pump

1. More stable blood sugars
2. More blood sugars in target range
3. Easier to fix high BGLs
4. Less hypos
5. No insulin injections
6. Eat when you feel like it
7. Flexibility in daily activity

Negatives about the pump

1. Requires training to use
2. Attached to a pump
3. May get a skin rash from needle/line
4. Extra expense
5. BGL's at least 4x per day
6. Potential for weight gain



GETTING STARTED

You need 2-3 days in hospital to get started on a pump. Some people prefer to take the option of 'day stay' and come in for education on consecutive days, monitoring their own blood glucose levels at home overnight.

Either way your hospital admission allows the time to help you learn

how to use the technical aspects of the pump,
manage food on the pump

how to respond to hypo and hyperglycaemia

It will also allow for fine-tuning your insulin doses as needed.

Tips to make starting on your pump easier

- see your diabetes educator and dietitian to help you revise your diabetes knowledge.
- View the pump operating video and practice using the pump buttons. (Don't connect to the pump until you have been trained in its use)
- Stop taking your long acting insulin 24hours before connecting to the pump to help avoid problems with low blood sugars when you change over. Talk to your diabetes educator/ doctor for advice on what to do with your insulin.

During the first 1-2 weeks after starting on the pump your insulin rates will need review and possible adjustment. This is done by phone every few days.

For ongoing care we advise seeing your diabetes health professionals every three months.

INSULIN DELIVERY- THE BASICS EXPLAINED

The insulin you give with a pump is made up of basal insulin, meal bolus insulin and correction bolus insulin.

BASAL INSULIN

- A small amount of insulin which is infused continuously to keep your blood glucose stable and to prevent your body producing ketones.
- A temporary basal rate can be used to increase or decrease the basal insulin on active days or during sick days

Everyone has different basal insulin needs. You will learn how to program your pump to give this insulin automatically.

MEAL BOLUS INSULIN

- Insulin you give to cover the carbohydrate foods you eat.
- For example, you may need one unit of insulin for every exchange (15gms) of carbohydrate.
- Some pumps can be programmed to help you calculate the amount of insulin needed.

The pump does not do this automatically. You program the pump to give the meal bolus when you eat.

CORRECTION BOLUS INSULIN

- Insulin you give to bring your blood glucose down.
- You will find that one unit of insulin will bring your BGL down a predictable amount.

The pump does not do this automatically. Some pumps can help you calculate how much insulin to give.

HOW MUCH INSULIN?

- Starting insulin doses are calculated based on your age, weight, previous insulin doses and how long you've had diabetes.
- These doses are estimates, they are usually not exactly right and will need to be adjusted by your diabetes specialist.

PUMP INFUSION SETS

You'll be shown how to insert an insulin pump infusion set. Each model of insulin pump requires different methods for preparing infusion sets however the following general principles apply to all.



General Tips for Successful Line Change

- Change the needle at least every 3 days to help prevent infection and skin irritation.
- Always disconnect from the pump before removing the insulin cartridge or 'priming' the infusion set. This will prevent accidentally injecting unwanted insulin
- When preparing your infusion set- wash your hands, set up equipment in a clean, uncluttered area, use the inside of packaging as a clean surface, and swab the top of the bottle with an alcohol wipe before filling the insulin cartridge
- Remember to bolus 0.5-0.8 units to fill the needle with insulin immediately after changing your infusion set
- Always check your blood glucose a few hours after changing your line. If your blood glucose is high there may be a problem with the new infusion set
- Using a moisturiser daily in the areas that you insert your infusion sets can help your skin recover.

Change the infusion set immediately if you think it's not working well.

Any area that can be used for insulin injections can be used for your pump needle. However you should avoid areas

- that have rashes or 'fatty lumps' (insulin will be poorly absorbed from these areas).
- Where it will be difficult to stick tape down such as the belly button or where you have body hair.
- Where your clothing or belt might rub
- That are difficult to reach when you want to disconnect from the pump.

Insulin pumps can be clipped onto a belt but are also easily concealed in pockets if preferred. If your pump is waterproof you can leave the pump connected for swimming and showering however most infusion sets allow for easy disconnection.

BLOOD GLUCOSE LEVELS

It's realistic to expect more stable blood glucose levels if you are using a pump. You should aim for

Before meals and snacks	4-6 mmol/L
2 hours after a meal	Less than 8mmol/L
Bedtime	6-8 mmol/L
3am	4-8 mmol/L

These targets can be individualised if you have reduced awareness of your hypos.

WHAT IF YOUR BLOOD GLUCOSE IS OUT OF TARGET?

When your BGL is more than 6 mmol/l, you can easily bring it back down with a bolus of insulin (correction bolus).

HOW OFTEN SHOULD YOU CHECK YOUR BLOOD GLUCOSE?

When first starting the pump- Check your BGL

- before meals and 2 hrs after meals, this will help work out the amount of insulin you need to cover meals.
- Before bed and around 2-3am, this will help work out the amount of basal insulin you need over night

When your diabetes is stable - Check your BGL

- before main meals and before going to bed.
- 2 a.m. - 3 a.m. in the morning once per month



Checking your BGL 4 times a day is important for safe use of the pump because

- the pump only infuses 'rapid acting' insulin.
- If there is a problem with the pump, line or needle then your 'rapid acting' insulin will quickly run out, your BGL will be high and blood ketones will build up.

Checking your BGL at regular intervals is the easiest way to detect if problems are occurring.

WHAT SHOULD YOU RECORD?

When your diabetes is stable just record your BGLs.

If you are having problems extra information that may help includes

- Insulin given (basal rates, meal boluses, correction boluses)
- Food eaten and the amount of carbohydrate exchanges
- Activity
- Line changes

HANDLING HYPO'S

The treatment of a hypo when you are on the pump is the same as when you were on injections.

Hypo's can be caused by

- Too much insulin
 - ◆ basal rate (check the pump setting and clock)
 - ◆ meal bolus or correction bolus
- Physical activity
- Long periods of not eating
- Drinking too much alcohol



If you feel low or your blood glucose is less than 4, you should

- have 1-2 carbohydrate exchanges.
- DO NOT give a meal bolus for this food.

1-2 carbs should be enough to bring your blood glucose level up and have you feeling better within 10 minutes. If you eat more than 1- 2 exchanges bolus for the extra carbohydrate when you feel better.

Treating a 'severe hypo'

If your child/teenager is too drowsy to drink, is in a coma or has a seizure,

- Place in the coma position (lying on the side)
- Give glucagon
- Call an ambulance
- Give carbohydrate once they are awake and able to swallow

Do not worry about the pump while you are treating a severe hypo. The amount of insulin that is infused during this time is very small and will not stop the glucagon injection working.

The pump can be disconnected after the hypo has been treated if this is thought to be necessary.

If you experience frequent hypoglycaemia or you have a severe hypo contact your diabetes doctor/educator for further advice.

WHAT ABOUT HIGH BLOOD GLUCOSE?

When your blood glucose is more than 15mmol/L ketones can build up in the blood with in hours if you don't give insulin to bring it down.

Common causes of high blood glucose are

- Forgetting to bolus for food
- Not giving enough insulin for food
- Problems with your infusion set
- Disconnection from the pump for more than 4 hours
- Illness
- Accidental change to pump settings (basal rate or time)

Remember, if there is any doubt about the infusion set, change it without delay

If your blood glucose is more than 15 follow the 'ABCC' for high blood glucose. Assess, Bolus, Check and Change

ABCC for high blood glucose

Assess - Check the following and fix if there is a problem

- is the pump running?
- is there insulin in the pump?
- is the infusion line leaking or damaged?
- is the needle/ cannula OK?

Bolus - give a correction bolus of insulin to bring the high blood glucose down

Check - Check the BGL one to two hours after correction bolus

Change - If the BGL has not come down change the entire infusion set (insulin, cartridge, line and needle). Then give a correction bolus and check the BGL 1-2 hours later.

Some precautions when correcting high BGL

- A correction bolus should not be given within 2 hours of your last insulin bolus as you may go low.
- Correction boluses at night should be given with caution. If you give a late night correction, check your BGL 2 hours later.
- If you are giving correction boluses regularly it may be a sign that your basal and/or bolus insulin rates need adjusting.
- The high BGL may be the first sign of a problem with the pump and/or infusion site.

DIABETIC KETOACIDOSIS

Ketoacidosis is a life threatening condition that occurs when blood glucose levels are high and ketones build up in the blood stream causing nausea and dehydration. Ketoacidosis can occur during illness or when there is a problem with your insulin pump.

Signs of ketoacidosis

Bad breath, Feeling sick, Stomach ache, Nausea, Vomiting, Heavy breathing, Blood glucose over 15mmol/L.

If you have any of these signs then check for ketones

What to do if you develop ketones.

1. Change the infusion set (insulin, cartridge, line and needle) and give a correction bolus. If you cannot change the line immediately then give insulin with a pen or syringe. Check blood glucose and ketones every 1 to 2 hours and give correction boluses as needed.
2. Drink lots of water. If your blood glucose is less than 10mmol/L drink fluids that contain carbohydrate eg- lemonade (not diet), juice, weak cordial.

**Contact your diabetes doctor/educator if you have large ketones or your blood glucose level and ketones do not settle rapidly.
Remember vomiting is a bad sign**

SMART EATING

The insulin pump gives greater freedom with what and when you eat.

On the pump it will be easy for you to:

- vary the amount of carbohydrate from meal to meal and day to day depending on how hungry you are.
- eat when you want and occasionally skip meals.
- sleep in and have breakfast much later.

Healthy eating is vital to provide enough energy to play, work and grow.

The basics of smart eating are to:

- base most of what you eat on wholegrain bread, cereals, rice and pasta, legumes, fruit and vegetables.
- have smaller serves of low fat dairy products and lean meat, eggs, chicken and fish.
- limit high fat snacks such as chips and chocolate and sugary foods like lollies and soft drinks.



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The Healthy Eating Pyramid provides a guide for eating for good health.

FOOD- WHAT'S IN IT?

Food is made up of 3 main nutrients:

- Protein
- Fat
- Carbohydrate



Proteins are building blocks of the body. They are important for growth and repair of body tissues. Eat lean protein foods in moderate amounts every day.

Protein foods include:

- Legumes eg. Baked beans, kidney beans
- Meat, chicken and fish
- Cheese
- Eggs



A small amount of fat is essential for healthy growth and development. There are three types of fat in food- polyunsaturated, monounsaturated and saturated. Polyunsaturated and monounsaturated are the healthiest choices but eating too much of any fat can lead to excessive weight gain.

Carbohydrates provide your main source of energy. They are broken down into glucose and are absorbed into the blood.

Remember to bolus insulin for the carbohydrate foods you eat.

Carbohydrate foods

- Breads and Cereals
- Pasta
- Starchy vegetables-potato, sweet potato, corn and taro
- Snack foods such as popcorn, pretzels, biscuits, crisps and muesli bars
- Spreads such as jam, chocolate spread and honey.
- Rice
- Fruit and fruit juice
- Milk, yoghurt, custard and icecream
- Sugary foods such as lollies, table sugar, cordial and chocolate
- Takeaway foods such as hamburgers, pizza, hot dogs, donuts and chips

COUNTING CARBO'S CARBOHYDRATE EXCHANGES

Accurate estimation of carbohydrate is important.

Knowing how much carbohydrate you eat helps guide how much insulin to give as a meal bolus. The more accurate you are the easier it will be to keep your blood glucose stable. To estimate carbohydrate amount we use exchanges. Try to be as accurate as possible in estimating what you eat to the nearest exchange.

One carbohydrate exchange is equal to 15grams of carbohydrate.

An exchange is not the weight of the food but the amount of carbohydrate it contains.

Examples of one exchange include

- one slice of bread,
- one apple,
- one cup of milk
- or half a cup of cooked pasta.



How do I work out the carbohydrate exchanges in the foods I eat?

The **Nutrition Information Panel** on the food label is the best way to get the information you need.

Jolly J Crackers Nutrition Information		
Serving size	20g	
Servings per package	2	

Amount per	servings	100g

Energy	300kJ	1500kJ
Protein	2g	10g
Fat	5g	25g
- saturated fat	2g	10g
Carbohydrate	14.3g	71.5g
- sugars	10g	50g

1. Divide the total carbohydrate in grams per serve by 15 for the number of exchanges per serve.
2. Decide how many serves are in the amount you are going to eat and multiply by the exchanges per serve.

For example

The Jolly J crackers contain 14.3g carbohydrate per serve. This is approximately one exchange (14.3 divided by 15). If you eat 2 servings, that would be 2 exchanges.

To calculate how many exchanges you eat of foods such as cereal, rice, pasta and starchy vegetables it is a good idea to

- measure your serving size with metric cups or spoons. You will soon become familiar with the carbohydrate exchanges in your usual serving size.

For those foods that do not have a nutrition information panel

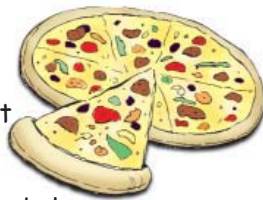
- look up the carbohydrate amounts in books or ask at the food outlet.

SOME CARBOHYDRATE EXCHANGES TO GET YOU STARTED

Food	Exchanges
Bread and Cereals	
1 Medium Bread roll	2
1 Lebanese Bread	3
1 Lavash Bread	2
1 Pikelet	1
1/3 cup cooked Rice	1
1/2 cup cooked Pasta	1
1 cup of breakfast cereal	2
Fruit and Vegetables	
Small handful of Grapes	1
1 medium sized piece of Watermelon	1
1 box of Sultanas	2
1 Cob of Corn	1
Dairy	
1 small carton of flavoured Milk	2
Cone with 1 scoop icecream	1
1 carton of flavoured yoghurt	2
Snacks/Sweets	
1 Donut	2
1 piece of sponge cake	2
2 Carbohydrate exchanges	2
Lollies-5 soft	1
Takeaways	
1 piece of crumbed/battered Fish	1
Milkshake	3
Thickshake	4
1 Meat Pie	2
1 slice of Pizza	2
1 bucket of hot chips	3

WHAT ABOUT THE GLYCEMIC INDEX?

The Glycemic Index is a measure of how quickly different carbohydrates raise your blood glucose level.



Carbohydrate foods that cause a slow, gradual rise in blood glucose are called Low GI Carbohydrates. Those that cause a quick increase in your blood glucose are called High GI carbohydrates.

Low GI meals include takeaway foods high in fat such as pizza. Meals based on low GI carbohydrates such as pasta also cause a gradual rise in your BGL.

For these foods give your meal bolus over 1-2 hours to match the slow absorption. Most insulin pumps can be programmed to deliver insulin boluses this way. Remember, the carbohydrate amount determines how much insulin to give. The GI of the meal helps you decide how to give the insulin. For more information on the glycemic index of foods see 'The New Glucose Revolution' by Prof Jennie Brand Miller and Kaye Foster Powell.

KEEPING A HEALTHY BODY WEIGHT

Most children and adolescents find they do not gain excessive weight when they start a pump. If you are overweight being on a pump may make it easier for you to achieve a healthy body weight as you don't have to eat between meals or always eat extra when you exercise. It is possible to gain weight when on the insulin pump if you eat too much food high in fat or added sugar. For this reason we suggest you have diet soft drinks and limit high fat snacks. Talk to your Dietitian if you feel you are gaining weight too rapidly.



Golden rules of eating on an insulin pump

- Eat healthy, low fat foods
- Do not skip main meals.
- Estimate the amount of carbohydrate in your food to the nearest exchange.
- Bolus before you eat

KEEPING THE BALANCE

GETTING PHYSICAL

Exercise

- usually drops the level of glucose in your blood.
- may send you low during or after exercise (some people are at risk of hypos up to 4 hours after exercise).

We suggest you play it safe. When you exercise for the first time we recommend that you

1. eat 1 -2 exchanges before exercise and every 45 minutes during exercise (don't bolus for this).
2. check your BGL before, during and after exercise.
3. disconnect the pump and leave it off during the exercise.
Make sure you put the pump somewhere safe when disconnected.

Remember do not suspend the pump when you disconnect. You may forget to restart the pump when you reconnect!

If you find that you still have hypos try the following and find what best suits you.

1. **Hypos during exercise**
Have carbohydrates more frequently or in greater amounts
2. **Hypos after exercise**
Eat carbs after exercise (and do not bolus) or put a temporary basal rate into your pump (50% less for 4 hours)

If you find that you are going high during exercise try one of the following and find what best suits you.

1. Eat less carbs for the exercise
2. Give a correction bolus if your BGL is high after exercise
3. Leave the pump on during exercise

Managing your diabetes during exercise is easier once you have worked out how exercise affects you.

SICK DAYS

There are two types of illness that effect your diabetes.

1. Colds and flu's which cause high blood glucose
2. Nausea and vomiting which cause low blood glucose



COLDS AND FLU'S

With this type of illness you often need more insulin. The extra insulin can be given as correction boluses or by temporarily increasing your basal insulin.

When you have this type of illness:

- Aim to keep your blood glucose below 15 and to stop ketones from building up in your blood.
- Check your BGL every 2 hours and your urine/blood for ketones at least 4 times a day.
- If your BGL is 8-15 give a correction bolus.
- If your BGL is over 15 Assess, Bolus, Check and Change.
- Increase your basal insulin 1.5-2 times (150 to 200%) for 12 hours if you have given 2 corrections in a 4 hour period
- If you have ketones ring for advice you need more insulin.
- Continue to have carbohydrates (food or drinks) and give insulin for these.
- Do the things you would normally do for a cold (drink fluids, take Panadol, see your GP etc).

NAUSEA AND VOMITING

When you are nauseated or vomiting it is difficult to eat so there is a risk that you could go low and not be able to get your blood glucose up.

When you have this type of illness

- aim to keep your blood glucose above 4
- Check your BGL every 2 hours and your urine/blood for ketones at least 4 times a day.
- If your BGL is under 5 decrease the basal rate 30 to 50% for 12 hours.
- Don't bolus for food or drinks (you may not keep the food down). Only bolus for food when you are feeling better and able to keep food down.



- If you have a hypo eat 1-2 exchanges- do not bolus for these. If you cannot keep these down then have glucagon and go to hospital immediately (or call an ambulance). If you do not have glucagon available then disconnect the pump and call an ambulance.
- If your blood glucose is high follow the steps as per 'colds and flus'
- Do the things you would normally do for this type of illness (drink sugary fluids, avoid diet drinks, have small bland meals).

During Sick Days call the diabetes team immediately if you experience any of the following

- You are worried
- You vomit more than 3 times in a row
- you are hypoglycaemic and vomiting (ring to let the team know you will soon be at the hospital)
- You cannot keep anything down.
- You have large ketones.
- You cannot clear the ketones.
- You seem to be getting worse (in any way).
- You have more than a mild illness

Remember if you are unsure or just want reassurance then you should call.



ADJUSTING INSULIN

Your diabetes team will adjust your insulin in the early stages. When you feel confident, you can make small changes yourself. You should always check with your diabetes team before you make any big changes.

SOME GENERAL TIPS FOR ADJUSTING INSULIN

If you are unsure of what to do then talk to the diabetes team. Don't put off a phone call. Early action prevents problems.

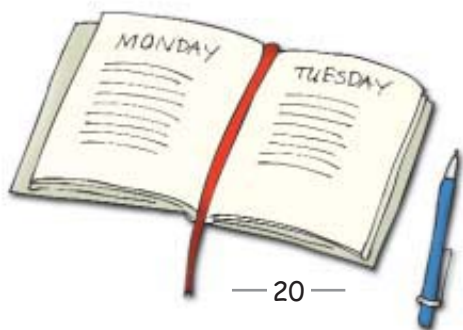
Never change the basal rate on the basis of one BGL. You need to see the BGL trend over a few days before changing the basal insulin.

Always make small changes when adjusting your insulin and wait 2 days (to see the effect of the change) before adjusting again.

If you start to have problems after making a change then change back to the dose or rate you were on before. Discuss the problems you are having with the diabetes team.

Always write down the changes you made and keep an up to date record of your doses and basal rates so that if something happens to the pump you can reprogram the pump easily.

If you are sick you may need to make bigger adjustments over a short period of time. Refer to the section on sick day management.



ADJUSTING YOUR BASAL INSULIN

When you first start the pump, you will need to skip mid meal snacks, check your blood glucose, and adjust your basal insulin if your blood glucose levels are not stable. You can do this at different periods of the day.

For example to adjust the basal insulin between breakfast and lunch

- Check your BGL 2 hours after breakfast, have no morning tea (or only eat free food) and check your BGL before lunch.
- If your BGL goes up then you need more basal insulin, so increase the basal rate. If your BGL goes down then you need less basal insulin, so decrease the basal rate.

To set the basal rate overnight you need to check your BGLs at midnight, 3 am and 7am. If your BGL goes up then the basal rate needs to be increased but if your BGL goes down it needs to be decreased.

ADJUSTING YOUR BOLUS INSULIN

To check how well your meal bolus covers the carbohydrate food you eat do the following

- Choose a food that you have accurately measured, check your BGL before you eat, bolus for this food and recheck your BGL in 2hrs.
- your blood glucose should be approximately the same before a meal and 2 hours after a meal. If your BGL has gone high then your meal bolus needs to be increased and if the BGL is low (or you have a hypo) then your meal bolus needs to be decreased.

The amount of insulin required for each carbohydrate exchange is usually the same through out the day. However, in some cases the amount of insulin you give for each exchange at different meals may vary.

To check how well your correction dose brings your BGL down do the following

- Check your BGL 2hrs after giving a correction bolus. You will find that one unit of insulin will bring your blood glucose level down a predictable amount. For example, if your BGL was 18mmol and 2hrs after having a correction bolus of 6 units your BGL had dropped to 12mmol, then one unit of insulin brings your blood glucose down 1 mmol.
- Do not check your correction dose within 2hrs of a prior insulin bolus as it will still be having an effect on your blood glucose levels.

LIFESTYLE ISSUES

SCHOOL

It is likely your school will be supportive of your child's needs, however communicating clearly with the school and teacher will be vital.

- Make an appointment with your child's teacher and other relevant people (Principal, sports teachers).
- show staff the insulin pump. There is no need to go into detail about the pump.
- emphasise to the teachers that the pump does not change the way they should treat you child/teenager and that they will not be expected to use or handle the pump.
- talk about 'hypos' including symptoms and how hypos should be treated.
- have hypo food available (so there is no need to leave the class).
- discuss high BGL's and action required should this occur.
- If the child/adolescent knows how to do correction boluses then they can do these at school without involving the school staff.
- Provide emergency contact details for yourself, a friend or relative, and your diabetes health team.

Diabetes Australia can provide written resource material to assist you with these discussions.

If your child is unable to bolus at school the pump can be pre-programmed to give meal boluses automatically.



RELATIONSHIPS

If you are self conscious about people knowing you have diabetes.

- You can make the pump less obvious by disguising it (put it a mobile phone case) or hiding it in clothes/pockets.
- You can have some time off the pump.(see section on disconnecting).
- It may help you to give a simple reply to questions about your pump like "I have diabetes and the pump keeps my blood glucose stable" This is usually enough of an explanation for most people.

If you are sexually active

- remove the pump and infusion set before sex if you feel self-conscious.
- Have insulin 2-4 hours after disconnecting to prevent your blood glucose levels rising and ketones building up in your blood. You can give this with an insulin pen or syringe
- Sex is physically active, it will drop your blood glucose. Have carbohydrate (food or drink) which you do not bolus for.
- Talk to your diabetes doctor/ educator about ways to prevent unplanned pregnancy and sexually transmitted disease.

ALCOHOL AND PARTIES



When you drink alcohol there are three main risks:

1. Hypoglycaemia (can be 8-12hrs after you drink)
2. Inability to think straight and look after your diabetes.
3. If you have a hypo people may think that you are drunk and not treat the hypo

We recommend playing it safe

- Limit the amount of alcohol you drink at any one time.
- Drinking more than 4 standard drinks per session is dangerous.
- If anything goes wrong it puts your friends in a difficult situation (they will have to explain to your parents what happened).

It's illegal to drink under the age of 18 years and to drink & drive.

If you're going out to a party do the following:

Change your pump needle. You will have less chance of a problem with your line when you are out.

Wear diabetes ID- a bracelet and/or a card in your wallet.

Make sure someone in your group knows you have diabetes and what to do if you are acting strangely (give carbs and call parents or ambulance if you don't get better rapidly)

Eat dinner or have a meal with 3-4 exchanges and eat carbs every 1-2 hours.

If you drink alcohol do the following to avoid hypos.

If you have more than 1-2 drinks only bolus for half the food you eat.

DO NOT BOLUS for the alcohol you drink even if the alcohol is high in sugar.

If you are vomiting call the diabetes team or go to hospital- you could be getting ketoacidosis. This needs urgent treatment.

Dance Parties- Always have enough carbohydrate to balance the dancing. Have carbs every 30minutes-1hour.
DO NOT BOLUS for this food.



If you have High Blood Glucose do the following

If you have had less than 3 drinks Assess, Bolus, Check and Change.

If you have had more than 3 drinks check your line is OK, but do not correct the high sugar. When you are drunk, there are potential problems with you doing correction boluses late at night

1. you are at risk of having an overnight hypo (because the body uses more glucose)
2. you may get the insulin dose wrong
3. you will probably fall asleep after the bolus and not check your blood glucose later

Ask your parents to help you. They should

1. Assess, Bolus, Check and Change for you
2. only give half the normal correction bolus
3. check your BGL in the early hours of the morning (this is when you are most likely to be low)
4. wake you at a reasonable time so you can check your blood glucose level.

We recommend that parents and teenagers talk about alcohol and make a plan of how it can be managed. The diabetes team can help with these discussions.

Some tips to avoid problems at parties

1. don't drink too much
 - drink slowly
 - drink low alcohol drinks
 - make every second drink non alcoholic
 - mix / order your own drinks
2. always have hypo food with you
3. eat carbs every 1-2 hours
4. wear diabetes ID- bracelet and/or wallet card
5. tell a friend about your diabetes and what to do if you act strangely
6. know you BGL before and after the party
7. have 1-2 carbohydrate exchanges which you don't bolus for

Remember, if you feel sick in the morning check for ketones.

TRAVEL



These are some general tips for avoiding problems when travelling

- Take sufficient supplies for the time you will be away.
- If you are going to another country, are infusion sets, batteries & insulin available there? If not, you will have to carry supplies for the time you are going.
- Take an insulin pen (in case the pump fails).
- Take a glucometer, strips, finger pricker and ketone strips.
- Take hypo food and glucagon.
- Wear a medic alert.
- Carry contact details for your doctor, diabetes centre and pump company representative.
- Carry letters for immigration and airline security.
- If you cross time lines then remember to change the clock in the pump (otherwise the basal rate settings will be wrong).
- Discuss your travel with the diabetes team before going.

WHAT IF I WANT A BREAK?

TAKING A BREAK FROM THE PUMP

You can have a break from the pump for a number of hours, a day/night, days to weeks, or permanently. You will need to take insulin with a syringe or pen if you disconnect from the pump for longer than 2-4 hours.

Talk with your diabetes team if you are considering a break longer than a few days



How to take a short break?

After 2 to 4 hours you need to have insulin.

- Check your blood glucose and have a meal.
- Give your usual meal bolus insulin, correction bolus if needed and 1 extra unit of insulin.
- Do this every 4 hours that you are off the pump.
- Use the insulin that you use in your pump. You can use either an insulin pen or vial and syringe.
- This can be given as an injection or you can inject into the infusion needle/cannula if you have left it in place. (this can only be done with some of the infusion cannulas but not all). Ask your diabetes educator how to do this.

How to take a break up to 24 hours?

- The easiest way is to just do the same as for a short break, but just keep giving insulin injections every 4 hours.
- Or give long acting insulin. Add up how many hours you will be off the pump and calculate the total amount of insulin that would normally be given as basal insulin. Multiply this by one and a half. Give this amount of insulin as an injection of NPH/Protophane.
- Check your BGL before each meal and give a meal and correction bolus of short acting insulin.
- Make sure the pump is suspended and kept in a safe place (the pump will beep while it is suspended). If you remove the batteries, the pump settings may be lost and you will have to reprogram the pump. It is a good idea to always have your pump settings written down and kept in a safe place.

How to take a break longer than 2days?

- you should go back onto a normal insulin regime. You can either go onto injections twice a day or four times a day. Before you do this you should talk to your doctor about appropriate insulin doses.
- Make sure the pump is suspended and kept in a safe place (the pump will beep while it is suspended).
- write down the pump settings and remove the batteries after a week

TAKING A BREAK FROM BOLUSING

There may be times when pre programmed meal boluses may suit you. You should consider this option if

- you are regularly forgetting to bolus for a meal
- your child is too young to bolus independently at school.

Ask your diabetes doctor/ educator to help you 'pre-program' some or all of your meal boluses, so that the pump will deliver this insulin for you automatically.

Remember that once the pump is programmed it will deliver a bolus at the same time everyday and you will have to eat enough carbohydrate at that time to prevent low BGLs.

You cannot take a break from bolusing to fix a high BGL. You must always take extra insulin when your BGL is high.

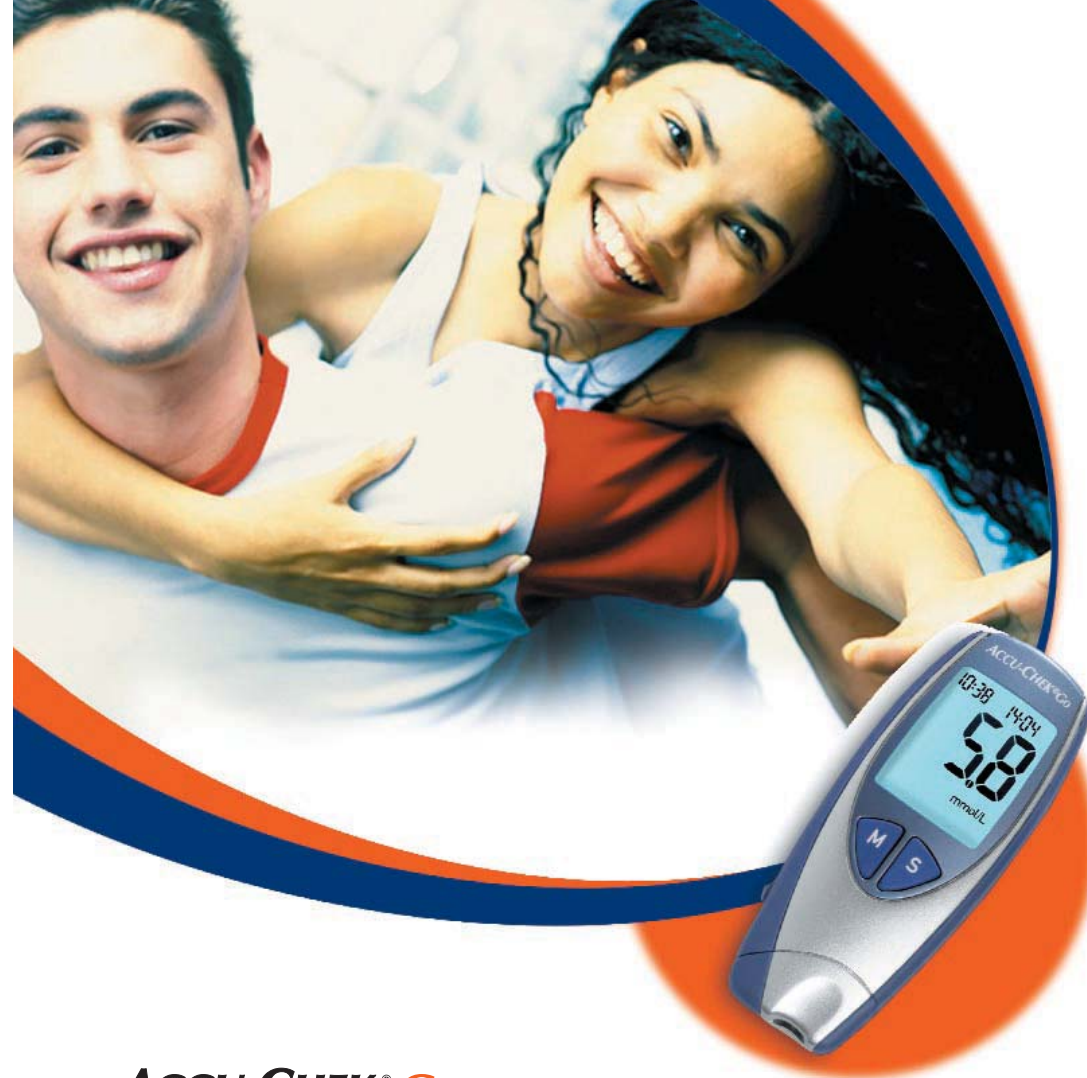


Trouble Shooting

Site problems

The following are suggestions for common difficulties with infusion sites.

- ❖ The needle or cannula insertion is painful, try
 - Cooling the site (ice or metal spoon)
 - Use an inserter
 - An anaesthetic cream (EMLA) to numb the area
- ❖ Skin infections
 - Check your method of line change.
 - Change the needles as soon they become uncomfortable, this may be more frequent than every 3 days.
 - Use an antibiotic soap (change all the soap in the house).
 - Call the diabetes team as soon as possible if you develop a red area larger than 10 cents or have any ooze at your needle site as you may need antibiotics to clear the infection.
- ❖ Skin irritation from the tape
 - Try using moisturizer daily on the area
 - Try putting a hypoallergenic clear dressing (eg Tegaderm) on the skin and insert the needle through it.
 - Contact 3M (the company; phone 136136). They have a range of products that can act as a barrier to protect the skin from the adhesive.
 - Try a different type of infusion set.
- ❖ The tape keeps falling off and the needle falls out
 - Try antiperspirant to stop sweating where you insert your line
 - Try using extra adhesive tape
 - Tape the tubing into a loop to stop it pulling on the site
 - Inform the pump company as it may be a batch of faulty infusion sets.
- ❖ You are getting a red spot at the needle site
 - A small red spot at the cannula site is normal and take 2-3 weeks to disappear. This is the skin repairing the cannula site.
 - Put the needles in areas that are not visible to others.
 - Use moisturising or vitamin E cream to speed their repair.



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New Accu-Chek® Go blood glucose meter gives accurate results in 5 seconds from a tiny sample of blood, plus it has a new strip ejection function, so you'll never have to touch the used strips again. What's more, it's the only meter that will tell you when your strips have expired and has an alarm clock to remind you when to take a reading. So go for Accu-Chek Go.

Ask your pharmacist or Diabetes Australia for more information and see your healthcare professional for medical advice. Use only as directed.

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