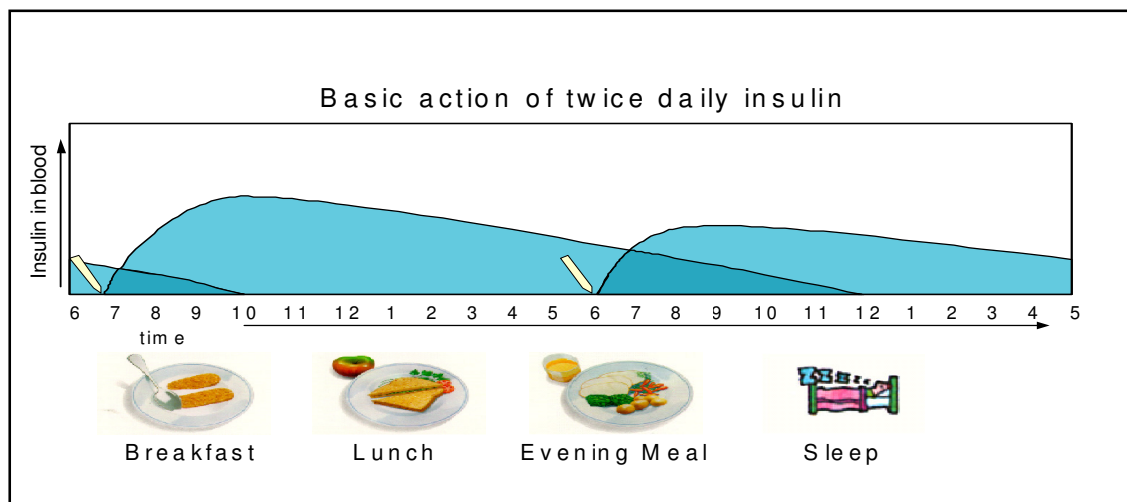




NHS Tayside Diabetes Managed Clinical Network Patient Information Leaflet

Insulin Adjustment for Twice Daily Mixed Insulin



The amount of insulin you require can vary due to changes in the food you eat and /or the amount of activity or exercise you undertake. This leaflet is designed to give you information about the action of insulin, and how and when to adjust insulin. Diabetes Specialist Nurses can assist with insulin management.

When does insulin work?

The body needs a basic amount of insulin all the time – day and night. Insulin such as Mixtard 30, Humulin M3, Novomix 30 and Humalog Mix 25 are mixtures of 'short acting' and 'intermediate' acting insulin.

Mixtard 30, Humulin M3, Insulatard and **Humulin I** insulin preparations should be given 20 minutes before breakfast and tea.

Novomix 30 and **Humalog Mix 25 and 50** insulin preparations have a quicker action and can be given immediately before or immediately after breakfast and tea.

Insulin taken before breakfast will work during the morning and afternoon

- The short acting insulin works until lunchtime.
- The intermediate insulin works until teatime.
- You will therefore know the effect that the insulin has had by checking your blood glucose (sugar) at lunchtime and/or teatime.

Insulin taken before tea will work during the evening and overnight

- The short acting insulin will work until bedtime.
- The intermediate insulin works during the night.
- You will therefore know the effect that the insulin has had by checking your blood sugar levels at bedtime and/or breakfast time.

How often should my blood sugar levels be checked?

- Your healthcare professional can recommend when and how often to test your blood sugar levels
- Ideally your blood sugar levels should be between 4-7mmol/L before meals.
- Test once per day at different times before a meal to provide a profile of your blood sugars
- Test your blood sugars more often if your diabetes treatment has been altered
- Test your blood sugars more often if you are ill. See Patient Information Leaflet on Sick Day Rules.
- Test your blood sugar level more often if results are outwith your recommended target, use the following information to identify the reason(s) and consider adjustment of insulin if necessary

Why are my blood sugar levels sometimes high?

A temporary high blood sugar level from time to time is impossible to avoid in everyday life. Some reasons for high blood sugars levels include:

- missed insulin dose
- insufficient insulin
- infection
- certain foodstuffs
- stress
- steroid therapy

- problem with injection technique or injection sites for example lumpy areas (lipodystrophy) under injection sites.

Why are my blood sugar levels sometimes low?

- Missed or delayed meals
- Not enough carbohydrate (bread, pasta, rice, potato, cereal type foodstuffs) in meals
- Too much insulin
- Increased exercise / activity
- Alcohol
- Problem with injection technique or injection sites for example, lumpy areas (lipodystrophy) under injection sites.

Insulin Adjustment

- Check your blood sugar levels before each main meal for 2 - 3 days before adjusting insulin
- If the cause of your high or low blood sugar is known then take steps to prevent further problems. For example, insulin can be adjusted in advance if you anticipate changes in your dietary intake or activity
- During illness you may require to adjust in insulin urgently see Patient Information leaflet on Sick Day Rules.
- The boxes below provide you with general guidelines about insulin adjustment.
- Diabetes specialist nurses can help and advise you about insulin adjustment.
- Sometimes a different 'mixture' of insulin is required.

Insulin adjustment guidelines for high blood sugar levels

Identify and address the cause of high blood sugar levels if possible. If the blood sugar level trend is still above 7mmol/L then adjust your insulin.

If the blood sugar level is:

- **high** before lunch **and** tea **increase** the breakfast insulin dose
- **high** before bed **and** before breakfast **increase** the teatime insulin dose.

Increase the insulin dose by 10%. For example if you normally take 20 units of insulin, increase your insulin dose by 2 units to 22 units.

Observe the pattern of your blood sugars for 2-3 days before adjusting again.
Contact the Diabetes Specialist Nurses if you need advice and support

What if my blood sugar level is high and my next insulin injection is due?

Take your usual dose of insulin. If you cannot identify the cause for the high blood sugar it may be that the insulin dose given **before** the high reading needs to be increased. Follow the insulin adjustment guidelines for high blood sugars.

Insulin adjustment guidelines for low blood sugar levels Hypoglycaemia or 'hypo'

If you have **unexplained** 'hypo' (blood sugar below 4mmol/L) reduce your insulin dose. The dose given **before** the 'hypo' should be reduced.

If you know the reason for a low blood sugar level then take action to prevent it from happening again.

If your blood sugar is:

- **low** before lunch **and/or** before tea **reduce** breakfast insulin
- **low** before bed **and/or** before breakfast **reduce** the teatime insulin dose

Reduce your insulin dose by 10%. For example if you normally take 10 units of insulin, reduce the dose by 1 unit to 9 units.

Contact the Diabetes Specialist Nurses if you need advice and support

What if my blood sugar level is low (below 4mmol/L) and my next insulin injection is due?

Have some quick acting carbohydrate for example 50mLs of lucozade or 3 glucose tablets to increase your blood sugar level, then take your insulin and meal as usual. Follow the insulin adjustment guidelines for low blood sugar levels to prevent the problem happening again.

Do not tolerate hypoglycaemia on a regular basis; ask for help from your healthcare professional. See Patient Information Leaflet Having a Hypo.

Diabetes Specialist Nurses

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