

Top tips for using Tandem T-slim

Information for patients, relatives and carers

Here are the top 10 tips on how to use the Tandem T-slim

1. Weekly review of data

Each week consider reviewing the following:

- Time in range (**TIR**)
- Overnight trends
- Post meal hyperglycaemia (high glucose >10mmol/L)
- Patterns of hyperglycaemia or hypoglycaemia (low glucose <4mmol/L)

2. Key settings to know

Make sure you know and regularly review these settings on the T-Slim x2 pump.

- Insulin to carbohydrate ratios (**ICR**)
- Correction factor
- Basal programmes
- Weight and total daily insulin dose (**TDD**)

3. Before making changes

Before making changes, first consider:

- **Was insulin given 15-20 minutes before meals?** *If it wasn't, the insulin may not be effective at the same time as the food is digested.*
- **Has your child been unwell or more stressed/ worried?** *Illness may raise insulin requirements/needs.*
- **Confirm that manual boluses are being entered as needed.** *Control IQ adjusts basal but relies on you to administer insulin for your CYP's meals.*
- **Are infusion and CGM sites functioning well and being changed regularly?** *We recommend every 2-3 days to ensure the insulin is still effective. If the CYP has any signs of lipohypertrophy (lumps), the insulin will not be as effective, so this will need to be avoided.*

4. Spotting patterns

Look at trends over at least 3 days. Trends you may notice:

- **High glucose level after a specific meal** - may need ICR strengthening at previous meal if the basal hasn't been suspended. If it has been suspended, it may be that the ICR is too strong, so the basal insulin has been suspended to prevent the low and then caused a high glucose level afterwards. In this instance, you would weaken the ICR at the last meal.
- **Low glucose level after meal**- may need a weaker ICR at previous meal if no additional insulin has been administered. Additional insulin includes a basal increase or correction boluses of insulin. If this is the case prior to the low glucose episode, then the ICR should be strengthened with previous meal.
- **High glucose levels after a hypoglycemia episode** - could be due to the basal suspending, or that you have overtreated. We would recommend reducing the treatment quantity.
- **Low glucose levels after a hypoglycaemia episode** – may need to increase treatment for hypoglycaemia episodes (low glucose levels below 4mmol/L). It would also be helpful to identify why this is happening. Too much insulin with previous meals? Or mismanagement of exercise.
- **High glucose levels after hyperglycaemia** - If a correction dose of insulin was administered, the correction factor will need to be strengthened.
- **Low glucose levels after hyperglycaemia** - If a correction dose of insulin was administered, the correction factor will need to be weakened, if it was not, it will be due to the pump's algorithm, and you will need to look at preventing the low glucose level by weakening the ICR with the last meal.
- **Frequently low glucose levels overnight** - consult with your diabetes team, as this is a concern and we would consider decreasing the basal rates overnight if you were already using 'sleep' mode. Another possibility would be that the evening meal ICR requires weakening if the low glucose levels started within 4 hours of the evening meal insulin dose.
- **Frequently high glucose levels overnight** - consider increasing the basal rates. Another possibility would be that the evening meal ICR requires strengthening if high glucose levels are present 4 hours of the evening meal.
- **Low glucose levels during or after exercise** - consider reducing insulin dose for the meal before or after the activity depending on when it occurred and ensure that 'exercise' mode is started 60-90 minutes before the start of the activity and for the duration. Exercise can also contribute to low nighttime glucose levels if they aren't managed appropriately during the day.
- **High glucose levels during or after exercise** - If insulin dose was reduced with the meal before or after the activity, it may have been too much. Was 'exercise' mode left on for too long. Exercise can cause high glucose levels, especially if the person is competing so it may be best to discuss this with the team.

5. How to adjust Insulin-to-carbohydrate ratios (ICR) & Correction factors

If the child or young person needs:

- An increase in insulin with a meal, the ICR would need strengthening
e.g. Change from 1unit:10g to 1unit:9g
- A decrease in insulin with a meal, the ICR would need weakening
e.g. Change from 1unit:10g to 1unit:11g

If the child or young person needs:

- An increase in insulin correction dose, as it is not currently bringing the glucose level back within target range, you will need to decrease the correction factor



e.g. Change from 1unit:7mmol/L to 1unit:6.5mmol/L

- A decrease in insulin correction dose because it is causing a low glucose level afterwards, you will need to increase the correction factor.

e.g. Change from 1unit:8mmol/L to 1unit 8.5mmol/L

Change settings gradually (by 5-10%) and assess effectiveness over several days before considering any further changes.

6. Auto correction delivery

If glucose values are predicted to be above 10mmol/L, control-IQ technology calculates a correction bolus using the personal profile settings and a target of 6.1mmol/L and delivers 60% of that value. An automatic correction bolus will not occur within 60 minutes of a bolus that has been delivered or cancelled. If the mealtime bolus is late (after the meal) and then you are seeing low glucose levels, this may be due to the pump delivering an auto correction – which is why **bolusing before eating** is so important.

7. Using sleep mode

Sleep mode is an optional feature within Control-IQ:

- It focuses on maintaining tighter overnight glucose control by minimizing insulin delivery when the glucose level is between 6.2-6.7mmol/L.
- It does not deliver auto corrections and aims to reduce overnight lows by adjusting basal only.
- You can set a sleep schedule or activate sleep mode manually.

Sleep mode may be helpful if overnight lows are frequent or if tighter overnight control is desired. Be mindful to review the time settings as your child's routines change.

8. Using exercise mode

Exercise mode is an optional feature within Control-IQ:

- It relaxes the glucose target to 7.8-8.9mmol/L during the time period chosen to reduce the risk of hypoglycaemia (low glucose level) during exercise.
- It will reduce basal rates and suspend insulin delivery earlier
- It will still deliver corrections of insulin automatically if the glucose is high, but they will be delivered less frequently at a reduced rate

9. Sensor connectivity issues

The t:slimX2 with Control IQ relies on Dexcom CGM (continuous glucose monitoring) data to adjust insulin accordingly. If your CGM readings are inaccurate or lost, Control-IQ may suspend or revert to manual mode, affecting insulin delivery. If you suspect sensor issues, troubleshoot or change the sensor promptly. Accurate sensor data is essential for safe insulin adjustments. If you require advice from Dexcom please use the following customer care number. **0800 031 5763**



10. Review schedule

We recommend you review your data every 1-2 weeks ensuring you are obtaining the best results from using the Tandem T:slim pump. Please contact your keyworker once you have done so to discuss any changes you feel are required. Once we feel you can make changes independently, we will let you know

Customer Care Teams

Tandem (Air Liquide): **0800 0121 560**

Dexcom: **0800 031 5763**

Table below showing what settings are relevant for specific pumps:

Pump	Basal	Insulin to carb ratio	Insulin correction factor	Active insulin time	Target glucose	Exercise mode / Activity mode	Panther tool / clinical resource
Tandem T: Slim	✓	✓	✓	X	X	✓	Panther tool



References:

1. Tandem Diabetes Care. (2023) Important Safety Information: Control-IQ Technology. Available at: <https://www.tandemdiabetes.com/en-gb/legal/important-safety-information/control-iq>
2. Tandem Diabetes Care (2023) Support centre: User guides for pumps and infusion sets. Available at: <https://www.tandemdiabetes.com/support-center/pumps-and-supplies/infusion-sets/article/user-guides>
3. Tandem Diabetes Care (2023) t:slim X2 insulin pump with Control-IQ technology: User guide (International version). Available at: <https://www.tandemdiabetes.com/docs/default-source/user-guide/user-guide-tslim-x2-control-iq-7-7-mmoll-eng-international-aw-1011078.pdf>

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