PITstop™ for Diabetes

PITstop insulin: general rules

Starting insulin - working out the initial total daily dose[1]

Multiply weight (kilogrammes) by 0.2. Multiply weight (kilogrammes) by 0.1 for people weighing 50 kilogrammes or less or if considered elderly / frail.

Titration: general rules[1]

1. Consider the insulin and its time-action profile to know when to set a target blood glucose range
   a. Bedtime basal insulin (Humulin I, Lantus, Abasaglar, Semglee) → morning / fasting
      Note: also applies to Toujeo or Tresiba injected at chosen time of day or Lantus, Abasaglar, Semglee injected in the morning
   b. Pre evening meal rapid-acting insulin → pre bed
   c. Pre breakfast pre-mixed insulin → pre evening meal
   d. Pre evening meal pre-mixed insulin → morning / fasting.
2. Agree target blood glucose range in line with individual HbA1c target.
3. Test at the agreed time for three days. If above the target increase basal and pre-mixed insulin by 2 units and rapid-acting insulin by 1 unit.
4. With basal insulin, assess confidence to continue self-titration every three days until either reaching agreed target, or reaching an agreed dose based on 0.5units/kg (opportunity to review progress towards fasting glucose target, together with current HbA1c, and day-time glucose pattern alongside a food/drink/activity diary or timeline).
   May decide to continue basal insulin titration or add a rapid-acting bolus.

Down-titration of insulin or sulfonylureas

1. Agree a pre-meal blood glucose range in line with their HbA1c target. Examples:
   - 5 - 6.5mmol/l for HbA1c target of 53mmol/mol
   - 6.5 - 8.5mmol/l for HbA1c target of 64mmol/mol.

   The bottom figure identifies the lowest blood glucose level considered suitable.
2. Highlight the bottom figure as the 'alarm blood glucose'. If dropping below this level, insulin/ sulfonylurea needs to be reduced. For insulin, follow the titration general rules, but reduce the insulin rather than increase it.



Insulin problem solving

Recurrent hypoglycaemia requires a total insulin reduction of 20%.
Changing from an area of lipohypertrophy requires at least 10% total insulin reduction.

Insulin intensification

Changing to a different insulin regimen: recommend a 10% dose reduction.
Note: changing from twice daily basal insulin to a once daily long-acting or ultra-long acting insulin: recommend 20% dose reduction.

Adding a bolus to a basal insulin regimen (basal plus), working out the initial dose.
Option 1: start with 4 units[2]
Option 2: start with 10% of the basal insulin dose[3]

Changing to a basal bolus regimen[4]
Work out the current total daily dose of insulin and reduce by 10%.
Divide the revised total daily dose by two. One half will be the basal starting dose and the other half needs to be divided by three to calculate the three bolus doses. If only requiring two bolus doses add the unused bolus dose to the basal insulin dose.

References

1 Davies M.J., Aroda V.R., Collins B.S et al. Management of Hyperglycaemia in Type 2 Diabetes, 2022. A consensus Report by the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD), *Diabetologia*, 2022. The 2026 consensus statement recommends referring to 2022 regarding insulin.

2 Owens et al. (2009). Algorithm for the introduction of rapid-acting analogues in patients with Type 2 Diabetes on basal insulin therapy. *Practical Diabetes International*. 26(2):70-77.

3 Edelman et al (2014) AUTONOMY: The First Randomized Trial Comparing Two Patient-Driven Approaches to Initiate and Titrate Prandial Insulin Lispro in Type 2 Diabetes, *Diabetes Care*, 37(8): 2132-2140

4 Bergenstal et al. (2008). Adjust to target in Type 2 Diabetes. *Diabetes Care*. 31(7):1305-1310.

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