

Insulin Dose Adjustments

Goal: To have the majority of pre-meal blood sugars in the target range. Some high and low blood sugars are still to be expected.

Toolkit for Insulin Dose Adjustments:

Fine tuning or making adjustments to insulin doses helps to keep blood sugars in the target range. In order to adjust insulin safely, you need to:



1. Check meter date and time to be sure they are correct
2. Test blood sugars at least 4 times per day
3. Record blood sugars in a log book each day according to time of day/meal (see samples).

Deciding if a dose adjustment is needed:

1. Look for **patterns** of high and/or low blood sugars at each time of day
2. Can you find a reason for the highs and/or lows?
 - After eating a meal? →
 - Snacking without taking insulin? →
 - Higher or lower activity? →

 - Sick days? →
 - Use of expired insulin? →
 - Missed doses? →
 - Leakage? →
 - No obvious reason? →
3. If there are **more** than 2 unexplained blood sugars below 70 in 1 week during the day, or any blood sugars below 70 overnight, you may need a lower insulin dose.
4. If more than half of blood sugars at a certain time of day are above target, you may need a higher insulin dose.

Adjusting your diabetes regimen:

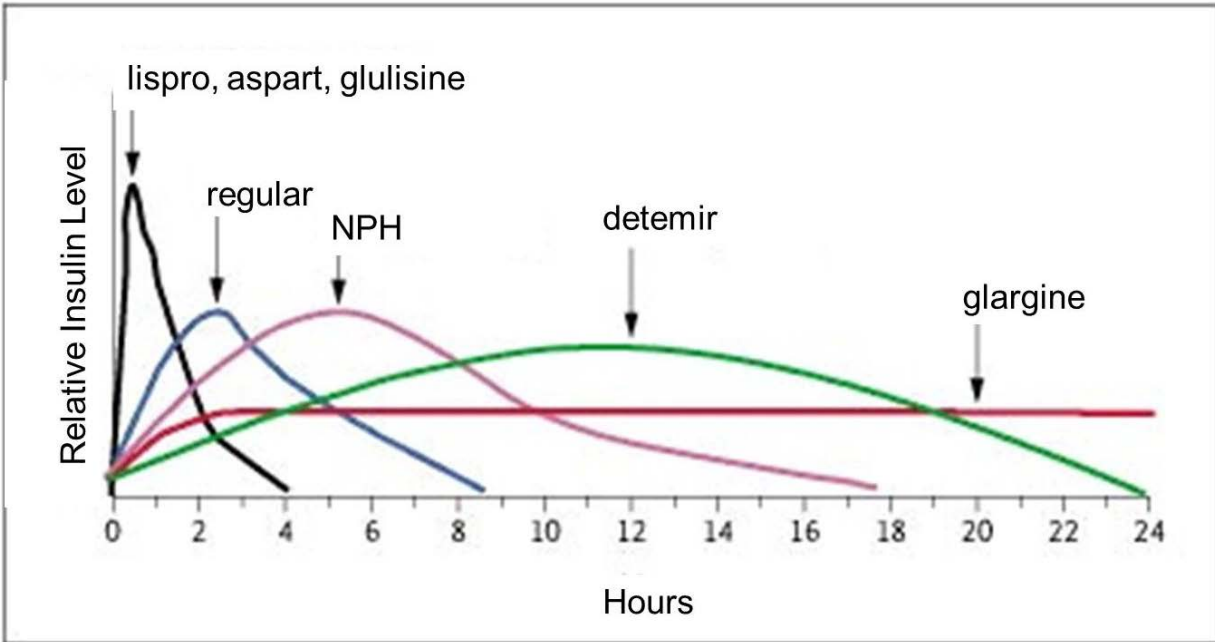
1. Understand how each insulin works (see insulin time action table below)
2. Make one change at a time
 - May need insulin dose adjustment
 - Consider giving insulin for snacks
 - May need insulin dose adjustment or extra snack before exercise
 - Check ketones, may need extra insulin
 - New insulin vial/pen
 - Reminders (phone alarms) at insulin times
 - Check injection technique
 - May need insulin dose adjustment

General Rules for insulin dose adjustments:

1. Fix low blood sugars first
2. Fix time of day with the most high sugars
3. Adjust dose by 10%
4. **Give changes 3-5 days for lows or 5-7 days for highs before making**

Insulin Time Actions

Type of Insulin	Starts Working (onset)	Working Hardest (peak)	Lasts (duration)
Humalog, Novolog or Apidra (lispro, aspart, glulisine)	10 to 15 minutes	60 to 90 minutes	3 to 4 hours
Lantus (glargine)	2 to 4 hours	No peak	20 to 24 hours
Levemir (detemir)	3 to 8 hours	No peak	6 to 23 hours



Adapted from Hirsch IB. N Engl J Med 2005; 352:174-183

Example Target Ranges

Infant/Toddlers (0-4yrs)	Sometime feel lows (5-10yrs)	Always/Usually Feel Lows (8-21yrs)
100-200	80-180	70-150

How to decide which dose to adjust:

Time out of Target	Insulin dose to Change
Morning/Breakfast	Long acting (Lantus/Levemir) or basal on a pump
Lunch	Breakfast insulin-to-carb dose or correction
Dinner	Lunch insulin-to-carb dose or correction
Bedtime	Dinner insulin-to-carb dose or correction

Time to Practice with your Logbook!

- Step 1: Look for patterns of highs and/or lows at each time of day
 - Step 2: If there are multiple unexplained lows at the same time of day – lower the dose before that time.
 - Step 3: If there are multiple above target blood sugars– increase the dose before that time.
 - Step 4: Keep monitoring blood sugars. Review again in 5-7 days to see if another adjustment is needed.
- Call your Diabetes Team if you are not sure if a change is needed or if you are not sure what change to make.
Call if after 3 changes blood sugars are still not in target. 314-454-6051