

This is my time in range chart for the past month. What recommendations would you make?

Based on your glucose distribution data, here are some recommendations to optimize your glucose management:

Strengths:

1. Good Time in Range (TIR):

- 83.4% of your readings are within the target range (3.9–10 mmol/L), which is excellent (the general goal for many people with diabetes is >70%).
- Your estimated A1c of 6.0% is also well within the recommended target for many individuals.

Areas for Improvement:

1. Reduce Lows (<3.9 mmol/L):

- **5.6% of readings are low**, with an average of 3.0 mmol/L. Frequent lows can be dangerous and may indicate overcorrection or excessive insulin dosing.
- **Action:**
 - Review insulin-to-carb ratios and correction factors.
 - Consider adjusting basal insulin if lows occur at consistent times.
 - Use temporary basal rates (if on a pump) or reduce long-acting insulin (if on MDI) during periods of increased activity.

2. Lower Highs (≥10 mmol/L):

- **11% of readings are high**, averaging 11.5 mmol/L.
- **Action:**
 - Check for patterns (e.g., post-meal spikes, dawn phenomenon).
 - Pre-bolus earlier before meals (10–20 minutes) to flatten postprandial spikes.
 - Review carb counting accuracy or consider reducing meal-time insulin if highs follow certain foods.

3. Glucose Variability:

- **Mean Total Daily Change (80.92 mmol/L) and Mean Hourly Change (3.37 mmol/L)** suggest moderate fluctuations.
- **Action:**
 - Aim for smoother transitions by fine-tuning insulin delivery (e.g., extended bolus for high-fat meals).
 - Monitor for stress, sleep, or activity impacts on variability.

4. Out-of-Range RMS (6.81 mmol/L):

- This metric reflects the magnitude of out-of-range deviations.
- **Action:** Focus on reducing highs and lows to bring this number down.

Additional Tips:

- **Use CGM Trends:** Watch for rapid rises/drops (>0.55 mmol/L per 5 minutes) and intervene early.
- **Review Lifestyle Factors:** Sleep, stress, and exercise can significantly impact glucose levels.
- **Consult Your Healthcare Team:** Share this data to adjust insulin settings or explore advanced strategies like closed-loop systems.

Summary:

Your glucose control is already strong, but fine-tuning insulin delivery and addressing patterns in highs/lows could further improve stability. Keep tracking and making incremental adjustments!

Would you like help interpreting specific time-of-day patterns (e.g., overnight vs. post-meal)?

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Thanks. This is my AGP graph. Can you enhance you recommendations using it please?

Your **Ambulatory Glucose Profile (AGP)** graph provides valuable insights into daily glucose patterns. Below are **enhanced recommendations** based on both your Time in Range (TIR) data and AGP trends:

Key Observations from AGP:

- Median Glucose (Solid Line):**
 - Likely mirrors your overall average of **6.6 mmol/L** (from TIR data).
 - Check if it stays stable overnight or rises/falls at specific times (e.g., dawn phenomenon or nighttime lows).
- Interquartile Range (25th–75th Percentile, Shaded Band):**
 - Represents where 50% of your readings fall. A narrower band = more stability.
 - If this band widens at certain times (e.g., post-meal or early morning), it signals variability.
- Outer Percentiles (10th–90th, Dotted Lines):**
 - Highlights extremes. For example:
 - **Lows (<3.9 mmol/L):** Likely occur at the 10th percentile.
 - **Highs (≥ 10 mmol/L):** Likely cluster at the 90th percentile.
- Time-of-Day Patterns:**

- **Early Morning (4:00–8:00):** Check for dawn phenomenon (rising glucose) or nighttime lows.
 - **Post-Meal (2–3 hours after 8:00, 12:00, 18:00):** Look for spikes.
 - **Overnight (22:00–4:00):** Assess basal insulin accuracy.
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Time-Specific Recommendations:

1. Early Morning (4:00–8:00):

- **If glucose rises (dawn phenomenon):**
 - Adjust basal insulin (increase by 10–20% during this window).
 - Consider a small protein/fat snack at bedtime to mitigate liver glucose release.
- **If glucose drops (nighttime lows):**
 - Reduce basal insulin or set a temporary lower rate (if on a pump).

2. Post-Meal Periods (After 8:00, 12:00, 18:00):

- **If spikes occur (>10 mmol/L):**
 - Pre-bolus **15–20 minutes** before eating (especially for high-carb meals).
 - Experiment with extended/square boluses (pump users) for fatty meals.
- **If post-meal lows occur (<3.9 mmol/L):**
 - Review insulin-to-carb ratios (may be too aggressive).

3. Overnight (22:00–4:00):

- **Goal:** Flat median line with minimal variability.
 - **If unstable:**
 - Test basal rates with fasting experiments (skip snacks, monitor trends).
 - Avoid late-evening carbs unless treating a low.
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General Adjustments Based on AGP + TIR:

1. Target Highs/Lows First:

- Prioritize reducing the **11% highs** (AGP 90th percentile) and **5.6% lows** (AGP 10th percentile).

2. Smooth Variability:

- Narrow the 25th–75th percentile band by:
 - Optimizing basal insulin (overnight and daytime).
 - Addressing meal-timing and insulin delivery (see above).

3. Leverage CGM Alerts:

- Set hypo/hyper alerts to catch outliers early (e.g., alert at 4.5 mmol/L to prevent lows).

Example Action Plan:

Time	Issue	Action
4:00–8:00	Dawn phenomenon?	Increase basal rate by 0.1–0.2 units/hour (if on pump).
12:00–14:00	Post-lunch spike	Pre-bolus 20 mins before eating; reduce carbs if >60g per meal.
22:00–2:00	Nighttime lows	Reduce bedtime basal insulin by 10% or snack on 5g carbs + protein.

Final Tip:

- **Track for 1–2 weeks after changes** and compare AGP updates. Small, incremental adjustments are safer!

Would you like help interpreting a specific time block (e.g., your worst spike period)?

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Great. Thanks for that. Here are the daily traces. Can you enhance any further with this information?

Your **week-to-week daily traces** add another layer of insight, revealing day-specific patterns and variability. Below are **refined recommendations** integrating all your data:

Key Observations from Daily Traces:

1. Day-of-Week Patterns:

- Compare weekends (Sat/Sun) vs. weekdays (e.g., work stress, sleep changes, meal routines).
- Example: If **Fridays** show more highs, it might link to dining out or reduced activity.

2. Intraday Variability:

- Look for "rollercoaster" days (rapid swings) vs. stable days.

- Identify recurring highs/lows at the same time each day (e.g., post-dinner spikes every Wednesday).

3. Trends Over 4 Weeks:

- Has variability improved/worsened recently? Check the most recent week (06/06–12/06) vs. older data.
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Enhanced Recommendations:

1. Day-Specific Adjustments:

- **Weekends (Sat/Sun):**
 - If highs dominate: Check for alcohol, late meals, or skipped insulin.
 - If lows occur: Adjust for increased activity (e.g., hiking, chores).
- **Weekdays (Mon–Fri):**
 - If stress-related spikes (e.g., morning meetings), practice mindfulness or slight insulin adjustments.

2. Tackle "Problem Days":

- **Example:** If **Tuesdays** consistently show post-breakfast spikes:
 - Pre-bolus earlier (20–30 mins) or reduce carbs.
 - Use a dual-wave bolus (pump users) for high-fat breakfasts (e.g., avocado toast).

3. Address Rollercoaster Days:

- **If glucose swings >5 mmol/L within hours:**
 - Check for overcorrection of lows (e.g., stacking insulin after treating a low).
 - Opt for **smaller, balanced snacks** (15g carbs + protein/fat) to stabilize.

4. Progressive Tweaks (Recent vs. Older Data):

- If **06/06–12/06** shows improvement:
 - Reinforce successful changes (e.g., pre-bolusing, adjusted basal rates).
 - If older weeks were better:
 - Revert to previous strategies (e.g., meal timing, insulin doses).
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Action Plan Template:

Day/Time	Issue	Action
Monday 8:00	Post-breakfast spike	Pre-bolus 25 mins before eating.
Friday 18:00	Happy hour highs	Limit alcohol to 1 drink; bolus for 50% of carbs.
Saturday 14:00	Post-lunch lows	Reduce meal insulin by 1 unit or add 10g carbs.

Pro Tips:

- Use the **"Logarithmic" scale** to spot subtle trends (helpful for tight-range management).
- Focus on **1–2 problem periods per week** to avoid overwhelm.
- Sync data with habits (e.g., gym days, travel) for root-cause analysis.

Final Step:

- Pick **1 high-priority pattern** (e.g., "Wednesday afternoon highs") and experiment with **one change at a time**. Re-evaluate in 1–2 weeks.

Would you like help designing an experiment for a specific day/time? For example: **"Test a 15-minute pre-bolus on Mondays and track the impact."**

I've attached my pump profile. Would you be able to recommend any changes given the data I've provided to you?

Your pump settings reveal several opportunities for optimization based on your glucose data (Time in Range, AGP trends, and daily traces). Below are **targeted recommendations** to address highs, lows, and variability:

Key Findings from Pump Profile vs. Glucose Data:

- Highs (11% ≥ 10 mmol/L):**
 - Likely linked to:
 - **Aggressive carb ratios** (e.g., 15.8g/U at 16:00) leading to underbolusing.
 - **Low basal rates** during active hours (e.g., 0.25 U/hr at 16:00–17:00).
 - **ISF too conservative** (e.g., 2.27 mmol/U at 12:00) delaying correction doses.
- Lows (5.6% < 3.9 mmol/L):**
 - Likely caused by:

- **Overlapping insulin activity** (DIA = 9 hours is unusually long; typical range 3–5 hours).
- **High ISF sensitivity** (e.g., 7.68 mmol/U at midnight) leading to overcorrection.

3. Variability (Mean Hourly Change: 3.37 mmol/L):

- Driven by mismatched settings (e.g., basal rates drop sharply at 16:00 but carbs/ISF aren't adjusted proportionally).

Recommended Adjustments:

1. Insulin Duration (DIA):

- **Current:** 9 hours → **Too long** (risks stacking insulin).
- **Change to:** 4–5 hours (standard for modern insulin). *Test with a fasting experiment.*

2. Carb Ratios (I:C):

Time	Current (g/U)	Suggested (g/U)	Rationale
16:00	15.8	12–14	Prevents post-dinner highs.
20:00	21.5	18–20	Reduces nighttime lows.

3. Insulin Sensitivity (ISF):

Time	Current (mmol/U)	Suggested (mmol/U)	Rationale
12:00	2.27	3.0–3.5	Less aggressive corrections reduce post-lunch lows.
04:00	6.32	5.0	Prevents dawn phenomenon.

4. Basal Rates:

Time	Current (U/hr)	Suggested (U/hr)	Rationale
16:00–17:00	0.25	0.30–0.35	Reduces late-afternoon highs.
21:00	0.35	0.30	Prevents nighttime lows.

5. Target Ranges:

- **Current:** Fluctuates oddly (e.g., 4.5–4.5 mmol/L at 12:00).
 - **Simplify to:**
 - **5.0–6.5 mmol/L overnight** (00:00–07:00).
 - **5.5–7.0 mmol/L daytime** (07:00–22:00).
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Priority Action Steps:

1. **Week 1:** Adjust **DIA to 5 hours** and **basal rates** (16:00–17:00 + 21:00). Monitor for reduced lows.
 2. **Week 2:** Tweak **I:C ratios** (focus on 16:00 and 20:00) to address post-meal spikes.
 3. **Week 3:** Refine **ISF** (start with 12:00 and 04:00).
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Caution:

- Change **one setting at a time** and monitor for 3–7 days.
 - Use temporary basal rates for testing (e.g., +10% overnight if dawn phenomenon persists).
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Example Scenario:

- **Problem:** Post-dinner highs (18:00–20:00) → Current I:C = 21.5g/U.
- **Experiment:** Change I:C to **18g/U** at 18:00. Check if highs drop without causing nighttime lows.

Would you like a customized adjustment plan for a specific time block (e.g., mornings)?