



FIT Technique Plus*

Continuous Subcutaneous Insulin Infusion (CSII)

*Educational tools based on FIT Canada Recommendations for Injection Technique



Meet Olivia



35 years old
Type 1 diabetes x 16 years
Insulin pump therapy x 8 years
BMI = 22 kg/m

Current challenges

- 8.6% A1C
- Unexplained glucose variability
- 12% hypoglycemia

Injection technique review

- **Site rotation:** Does not use a structured pattern
- **Site selection:** Prefers to infuse into front mid-abdomen as this is easiest; randomly may use outer thigh or arm
- **Site inspection:** Lipohypertrophy present at two favourite injection sites (abdomen, either side of umbilicus); skin irritation at sites
- **Technique:** Currently uses 9 mm straight infusion set, manually inserts cannula, changes site every 4-5 days, no skin prep before; noted no cannula fill on pump download

What does the research say?

Skin:

Messer 2018¹

Dermatological complications are often cited as a barrier to device use and a reason for device discontinuation

Kastner 2022²

Infusion set function remains the limiting factor of insulin pump therapy due to non-metabolic complications

Subclinical lipohypertrophy:

Barlas 2023³

Lipohypertrophy detection rate with ultrasonography was present in 71% of insulin pump users

Troubleshooting hyperglycemia:

Wersäll 2022⁴

Insulin pump therapy is associated with a higher risk of mild diabetic ketoacidosis

Recommendations for Olivia

1. Review current infusion sets available for their insulin pump, and encourage use of insertion devices.
2. Review step-by-step process for equipment change including frequency and canula fill (as per manufacturer's recommendation), skin prep, and adhesive removal.
3. Identify 8 post card-size areas for insertion site rotation.
4. Rotate sites within same area to lengthen time before next use.
5. Avoid the lipo/scarred sites for 3–6 months to then be reassessed before starting to use. Give recheck date before resuming using site.
6. Smaller cannula (6 mm) recommended, to avoid/decrease risk of intramuscular (IM) infusion.
7. Increase blood glucose monitoring and reduce the insulin dose (up to 20%) when switching to healthy infusion sites.
8. Assess for ketones if BG >14.0 mmol/L and follow DKA prevention protocol.
9. Inspect infusion sites daily for any redness, swelling, leakage or irregular lumps or irritation.

