**FIT Technique Plus**

**Lipohypertrophy**

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**Meet Phil**

22 year old ♂
Type 1 diabetes for 12 years
BMI = 22kg/m²

- Diligent with his diabetes regime for the first 5-6 years, regularly attending appointments with his mother.
- He has graduated from university and started his career.
- He is using a basal bolus regimen.

**Current Challenges**

- Too busy to attend appointments, despite encouragement from his mother.
- Erratic blood glucose readings, testing infrequently.
- A1C was 11.2% on his first return appointment.

**Injection Technique Review:**

- **Site selection:** abdomen only.
- **Site rotation:** left side to right side with no attention to proper rotation within the site.
- **Site inspection:** he does not inspect his sites and was very surprised to learn that there were two very large lumps present at his two usual injection sites.
- **Technique:** injects 8mm pen needle at 90° angle with a proper skin lift. Reuses his needles regularly.

*Duration of diabetes, lack of attention to proper site rotation and needle reuse have all potentially led to the development of lipohypertrophy.*

*Insulin injected into an area of lipohypertrophy will not be absorbed properly and will affect blood glucose control.*

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**What does the research say?**

- **Vardar 2007**
  Three independent risk factors for the development of lipohypertrophy include the duration of insulin use, the frequency of changing injection sites and the frequency of changing needles.

- **De Coninick 2010**
  In an international injection technique survey over 4,300 people living with diabetes, 48% of the patients reported lipohypertrophy at their injection sites.

- **Frid 2010**
  Injection sites should be inspected by the healthcare professional at every visit, especially if lipohypertrophy is already present.

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**Recommendations for Phil**

- Avoid injecting into lipohypertrophy to improve insulin absorption and allow the affected areas to reduce in size.
- Use a structured rotation plan, beginning with the upper abdomen.
- Based on current glycemic control, continue with usual insulin regimen and try 4mm pen needles, no skin lift.

- **Check blood glucose a minimum of 2 times per day.**
  In his 3 month follow-up, he felt encouraged seeing improved blood glucose results. He continued to use the 4mm pen needles and changed his injection site, as recommended. He also started checking his blood glucose at least 2-3 times a day.

**FIT Canada Recommendation: 5**

When changing injection sites from a lipohypertrophic to healthy site patients should be cautioned to initially reduce the insulin dose and monitor their blood glucose more frequently.

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*Supported by BD Medical – Diabetes Care 08-2013*
**What is lipohypertrophy?**

Lipohypertrophy is present at the injection sites of many people who inject insulin.

- Lipohypertrophy, sometimes referred to as “lipo”, is a thickened rubbery area of fat tissue that can grow and develop in the subcutaneous fat where injections of insulin are given.
- Areas of lipohypertrophy vary greatly in size and are often felt more easily than seen.

- Regular site inspection should be a normal part of your injection routine. To check your injection site, feel the area where you normally inject. Look for puffiness, raised areas and redness. Feel for hardness or lumpiness. If it is difficult to see your injection sites, a mirror may help.

**Did you know?**

**Lipohypertrophy can be prevented.**

- The risk of developing lipohypertrophy increases with repeated injections into a small area less than the size of a postage stamp.

Areas for injection should be at least the size of a postcard and each injection should be rotated within the area, spaced at least one finger width apart. In other words, don’t inject in exactly the same point each time.

**Did you know?**

**Lipohypertrophy has also been associated with needle reuse.**

- Needles should be used only once (and then disposed of in an approved sharps container).

**An area of lipohypertrophy can affect your blood glucose control.**

- Injecting into an area of lipohypertrophy can cause irregular insulin absorption and have an impact on your blood glucose readings.

Talk to your doctor or diabetes educator if you think you have lipohypertrophy at your injection sites.

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