Lipohypertropl

Dr Nicola Davies, Health Psychologist and writer, explains what is and what are the causes of diabetes complication lipohypertrophy.

Lipohypertrophy is the accumulation of fat that often occurs in people with diabetes at the site of insulin injection. What causes this condition? How serious is it? What treatment options are available, and can it be prevented?

What is lipohypertrophy?

Lipohypertrophy is also commonly called "lipo." Lipos are thick or rubbery lumps found around the site (point) of insulin injection. Rarely, lipos can also appear as firm shiny areas. They are often found on either side of the belly-button and on the mid-thighs where it is easy to inject insulin.

Sometimes people inject insulin in areas not recommended for insulin injection, such as inner thighs and forearms, and therefore lipos can also be found in these areas.

The lumps may be visible or not visible. Sometimes they can only be felt by pressing the area. They can be as small as a pea or as large as a golf ball or orange.

Why does insulin injection cause lipohypertrophy?

Insulin is a hormone that promotes cell growth. When you inject insulin repeatedly at the same site, it results in a build-up of fat cells around this site, forming lipos.

How common is lipohypertrophy?

Lipohypertrophy is rather common, but awareness of it among patients is quite low. Dr Pete Davies, Associate Medical Director and Consultant in Diabetes and Endocrinology, Sandwell Hospital, Lyndon, said awareness of this condition is variable. He also observed in one of his patient studies, that almost half of the patients had lipohypertrophy. Other experts support this finding.

How will lipohypertrophy impact me?

Lipos can be unsightly when they become visible. Even if the lipos aren't visible, injecting insulin at a lipo-site can cause problems with your blood glucose control.

Lumps can appear underneath the skin, which are a build-up of fat and, if you continue to inject into these lumps, they can affect the absorption rates of your insulin, possibly making your blood sugar levels quite erratic. If your blood sugar is poorly managed, it increases your risk for other complications.

Reduced insulin absorption due to lipohypertrophy has a converse complication when injection sites are rotated and lipos are avoided. The insulin is absorbed more effectively at sites without lipos and thus the required insulin dose is reduced when a patient no longer injects into a lipo. This may cause hypoglycaemia if the dosage is not adequately adjusted.

Harwinder Gill, Certified Diabetes Educator (CDE) at Fraser Health Authority, Canada, provided a patient example. This patient's blood sugar could not be controlled, even with increasing insulin doses, until finally lipos were discovered where he was injecting. This was causing the problem. By injecting at a lipo-free site, his insulin dose could be reduced by 75% and his blood sugar controlled.

How can I prevent lipohypertrophy?

It is important not only to choose different parts of your body for injections, but also to rotate the precise spot within that part. So, for example, where you use your legs as your injection site, make sure you don't inject into the same spot every time.

When rotating your injection sites, select larger areas for injection. A survey showed that the larger the area selected for injection, the lower the chances of developing lipos.

Injection areas smaller than a postage stamp are most prone to develop lipos, while injection areas at least the size of a postcard are least prone to develop lipos.

Rotating injection sites can help reduce the risk of lipohypertrophy

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Spotting the signs of lipohypertrophy and how to reduce the risk

Am I at a risk of developing lipohypertrophy?

You might be at a higher risk for developing lipohypertrophy if:

- You've been using insulin injections for a long time.
- You aren't rotating insulin injection sites: Rotating injection sites means injecting systematically at a different spot each time. Injecting insulin repeatedly at the same spot increases your risk for developing lipos.
- You are reusing needles.

The Forum for Injection Technique recommends the best current preventative and therapeutic strategies for lipohypertrophy include rotation of injection sites with each injection, and non-reuse of needles

If you are unsure whether or not you have lipohypertrophy:

- Avoid injecting into that area.
- Ask your healthcare provider check for lipos. They will work with you to make a plan for the best place to inject. Many people with diabetes that have lipos inject into the lipo-sites. However, although it hurts less to inject into the lipo-sites, it will only increase lipos and may cause problems with blood sugar control.

Additional tips for preventing lipohypertrophy include:

- Follow the correct injection technique: Talk to your healthcare provider and discuss the correct injection technique with them.
- Never reuse needles: Experts have found that not reusing needles reduces your risk for developing lipos. You may save money by reusing needles, but in the long-term this can be more expensive due to lipos and any subsequent complications.
- Check your injection sites regularly: Check the injection areas and sites regularly so that you can spot lipos early. Early detection of lipos is one of the best ways to prevent them from developing any further. Examine your injection sites while standing as standing makes it easier to find lipos. Look for any puffiness, lumps, swelling or redness. Search for any hardening at the injection site by feeling and pressing the area with your fingers. It may be easier to feel the lipos than to see them.
- Monitor your blood sugar regularly (2-3 times a day): If there are any unexplained highs and lows in your blood glucose, it may be time to check for lipos.

People with lipos are advised to:

- Avoid the lipo-site for injections - this will allow the site to heal and return to normal, which can take months to years.
- Rotate as recommended - this will prevent new lipos from forming.
- Be aware of fluctuations in blood sugar that may be caused by injecting into lipo-sites.

Dr Davies suggested always moving 1-2 finger breadths from one shot to the next and not injecting at that spot for a while.

The **Forum for Injection Technique** (FIT) recommendations (adapted to UK) strongly advise to learn an easy-to-follow injection rotation scheme as soon as you start insulin injection therapy. However, it is never too late to learn. Your diabetes nurse can give you a grid to help you remember where you injected last. You can also use tattoos designed to help you remember where your last injection was and where your next injection should be (Tartoos).

What should I do if I already have lipohypertrophy?

Dr Davies said: "Diabetes is about good self-care and access to specialist help should be based on need, as often as needed… and based on request." Take care of your injection sites and check them for lipos - if at any time you find any lipos, contact your healthcare provider. The lipo-sites should be inspected by your healthcare provider at every visit and you should get each site checked at least annually.

Is there treatment for lipohypertrophy?

The main treatment for lipohypertrophy is to avoid injecting into the affected site. It can take some time for the lumps to go down, but if they haven't improved in a couple of months you should consult a doctor. Prevention, however, is far better than cure.

More information

The Forum for Injection Technique (FIT): **http://www.fit4diabetes.com/united-kingdom/**

A leaflet of *FIT Injection Technique Recommendations* is available at: **http://bit.ly/1bW4OOW**

The DRWF leaflet ***What is diabetes?*** can be downloaded at: **https://drwf.org.uk/diabetes-leaflets** or can be requested by emailing **enquiries@drwf.org.uk** or calling **02392 636136**.

About the author
Dr Nicola Davies is a Health Psychologist and writer with a special interest in chronic conditions.

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