

What is lipohypertrophy?

Lipohypertrophy is an abnormal accumulation of fat underneath the surface of the skin. It's most commonly seen in people with type 1 diabetes. In fact, up to 50 percent of people with type 1 diabetes experience it at some point. Repeated insulin injections in the same location can cause fat and scar tissue to accumulate.



Figure 1: (a) Lipohypertrophy (b) Lipoatrophy

Symptoms of lipohypertrophy

The main symptom of lipohypertrophy is the development of raised areas under the skin. These areas may have the following characteristics:

- small and hard or large and rubbery patches
- surface area over 1 inch in diameter
- a firmer feel than elsewhere on the body

Areas of lipohypertrophy can cause delays in absorption of medication administered to the affected area, like insulin, which can result in difficulties controlling blood sugar.

Lipohypertrophy areas should *not*:

- be hot or warm to the touch
- have redness or unusual bruising
- be noticeably painful

These are all symptoms of a potential infection or injury. See a doctor as soon as possible if you have any of these symptoms.

Lipohypertrophy is not the same as when an injection hits a vein, which is a temporary and one-time situation and has symptoms that include bleeding and a raised area that may be bruised for a few days.

Treating lipohypertrophy

It's common for lipohypertrophy to go away on its own if you avoid injecting in the area. In time, the bumps may get smaller. Avoiding the injection site is one of the most important parts of treatment for most people. It can take anywhere from weeks to months (and sometimes up to a year) before you may see any improvement.

Causes of lipohypertrophy

The most common cause of lipohypertrophy is receiving multiple injections in the same area of skin over an extended period of time. This is mostly associated with conditions like type 1 diabetes which require multiple injections of medication on a daily basis.

Risk factors

There are several factors that increase the odds of developing lipohypertrophy. The first is receiving injections at the same location too often, which can be avoided by consistently rotating your injection sites. Using a rotation calendar can help you keep track of this.

Another risk factor is reusing the same needle more than once. Needles are meant to be single-use only and are dulled after each use. The more you reuse your needles, the greater your chance of developing this condition. Poor glycemic control, duration of diabetes, needle length, and duration of insulin therapy are also risk factors.

Preventing lipohypertrophy

Tips for preventing lipohypertrophy include:

- Rotate your injection site each time you inject.
- Keep track of your injection locations (you can use a chart).
- Use a fresh needle each time or avoid using it more than four times.
- When injecting near a previous site, leave about an inch of space in between the two.

Also, keep in mind that insulin absorbs at different rates depending on where you inject. In general, your abdomen absorbs injected insulin the fastest. After that, your arm absorbs it most

quickly. The thigh is the third fastest area for absorption, and the buttocks absorb insulin at the slowest rate.

Make it a habit to routinely inspect your injection sites for signs of lipohypertrophy. Early on, you may not see the bumps, but you'll be able to feel the firmness under your skin. You may also notice that the area is less sensitive and you feel less pain when you inject.

Rotating injection site

Site rotation is an important component of insulin therapy, especially for people with diabetes who inject three or more times a day. Proper site rotation may result in more consistent insulin absorption and minimize development of lipohypertrophy/lipodystrophy. Injection into lipodystrophied sites, results in an erratic absorption of the drug, leading to glycaemic variability making it difficult to achieve suitable metabolic control. Annual examination of injection site is recommended for evidence of lipodystrophy.

