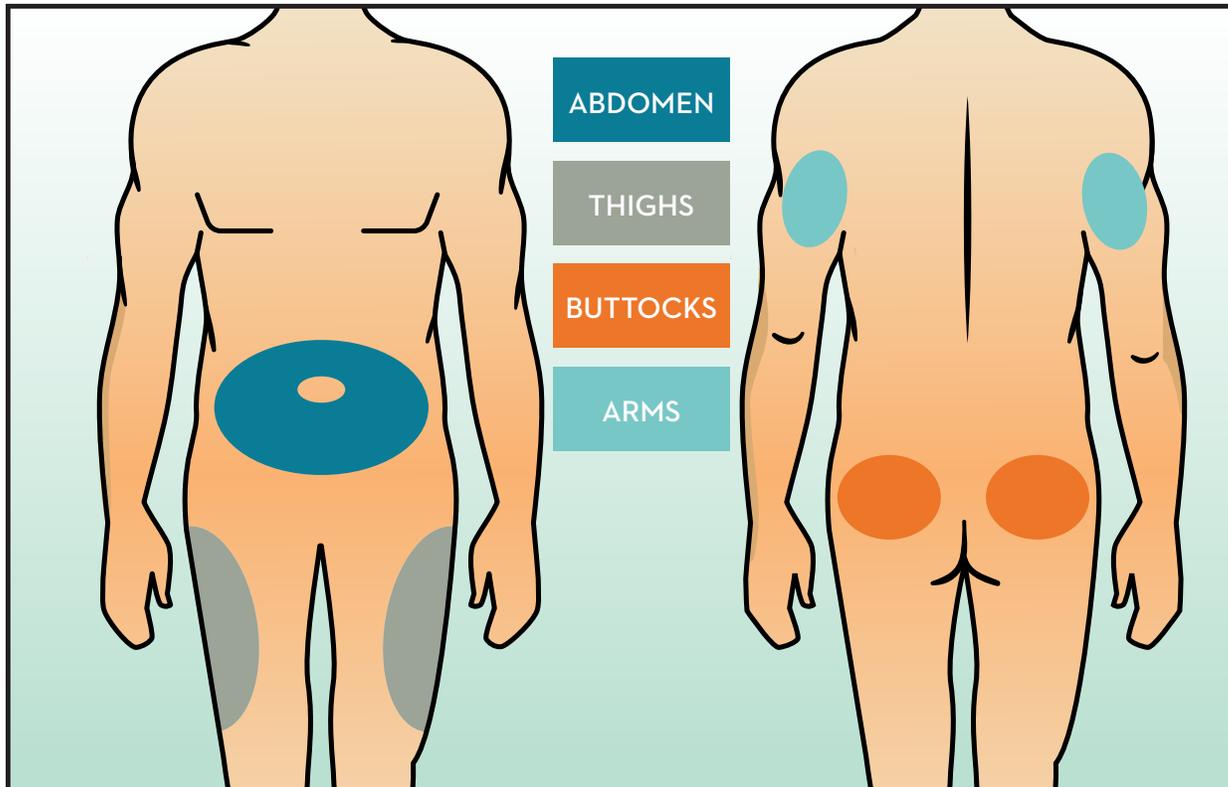




INSULIN INJECTION **KNOW-HOW**

Pro Tips (and Tricks) for Easier and Better Insulin Injections



Recommended injection sites

WHERE IS THE BEST PLACE TO GIVE INJECTIONS?

Insulin and other injected diabetes medications are meant to be delivered into the fat layer just under the skin. Popular areas to inject include the abdomen (staying two fingers or a few inches away from the belly button), outer thighs, hips, upper buttocks, lower back, and backs of the arms. Modern insulin products are well absorbed and act

about the same regardless of where they are injected. However, for best results it is important to stick with a consistent body part for your injections in order to avoid variations in insulin action. Ultimately, the choice is up to you. Select a part of your body that you can see, reach, and access easily. But be sure to use a number of different

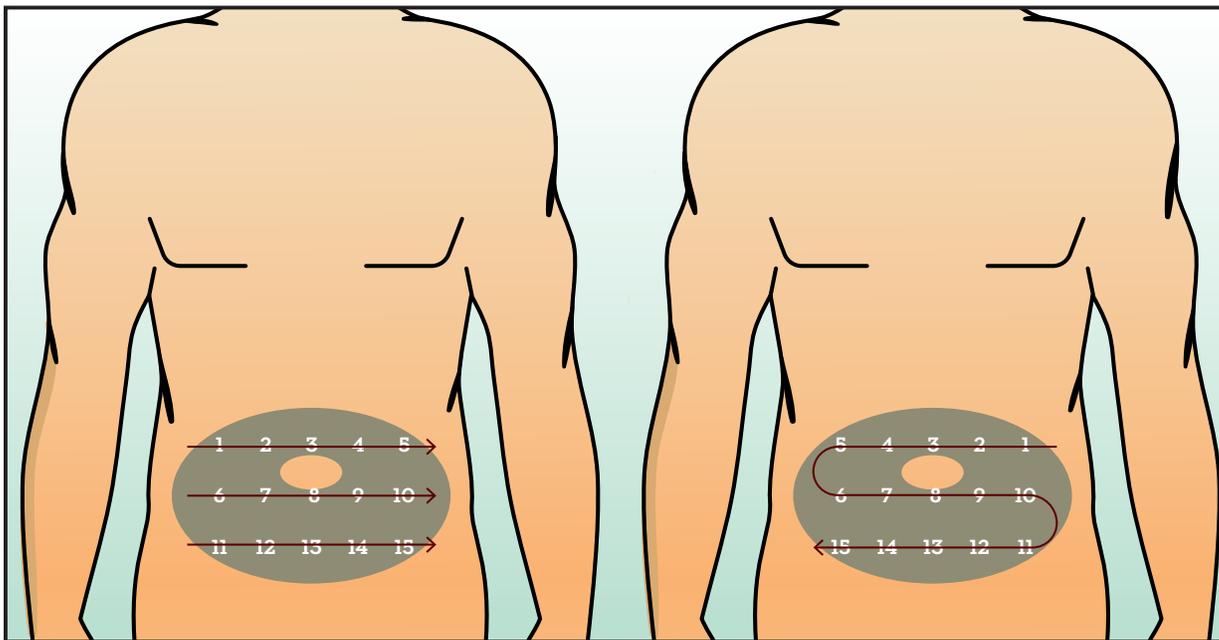
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spots within that body part. This is called “rotating” injection sites. Injecting into the same spot too often can cause skin problems and can impair your body's ability to absorb the insulin.

For example, if you choose to use your abdomen, rotate (change) injection spots on a daily basis like these:

With this type of pattern, you'll stay on the left side of your abdomen for 12 days and then switch to the right side for 12 days. That way, each spot has 24 days to “heal” before you use it again! Regardless of which body part and rotation pattern you choose, avoid spots on your skin that have scar tissue, moles, swelling/inflammation, or unusual changes in appearance or texture.



Recommended way to rotate injection sites.

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IS THERE A TRICK FOR REMEMBERING TO TAKE MY INJECTIONS?

Missed injections (or taking injections much too late) can cause serious blood glucose (blood sugar) management problems. Research has shown that missing just one insulin injection per week can raise your A1c by more than 0.5%!

Here are some techniques for helping you to remember to take your injections:

- ★ Attitude is important, so take your diabetes seriously!
- ★ Write down your injection doses after taking them
- ★ Use reminder alarms on a watch or mobile phone
- ★ Take your injection at the same time that you perform another daily task, such as taking oral medications or brushing your teeth
- ★ Keep your injection materials in a strategic location so that you notice them at the right times
- ★ If you take insulin at mealtimes, take it before eating (with your doctor's approval).

DO I HAVE TO KEEP MY INSULIN REFRIGERATED ALL THE TIME?

Yes and no. Insulin is a large protein molecule that breaks down gradually when exposed to warm temperatures. It is best to keep your extra insulin and other injected diabetes medications refrigerated. However, once you begin to use a vial or pen, it is usually fine to keep it at room temperature for up to a month. Do not store your insulin near extreme heat (above 86°) or extreme cold (below 36°). (3) Never store insulin in the freezer, direct sunlight, or in the glove compartment of a car.

All insulin vials and pens should be replaced monthly, if not more often, to ensure that they are working at full potency. Be sure to check the expiration date before opening the box, and do not use insulin past its expiration date without your physician's approval. Examine the insulin closely to make sure it looks normal. Clear insulin should not have crystals or discoloration, and cloudy insulin should not have clumps or pieces stuck to the sides of the vial/pen.

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IS IT NECESSARY TO MIX INSULIN BEFORE INJECTING IT?

In general, clear insulin does not need to be mixed before injecting. This includes Regular insulin, rapid-acting insulin analogs (aspart, lispro and glulisine) and long-acting basal insulin (glargine and detemir). However, any vial or pen that contains NPH – including premixed formulations such as 75/25 and 70/30 – must be mixed until they are uniformly cloudy before injecting. The best way to ensure an even mixture is to roll the pen or vial between your palms ten times, then inspect to make sure there are no “clumps” settling at the bottom. Injecting insulin that is not properly mixed can result in serious high or low blood glucose.

HOW CAN I KEEP THE INJECTIONS FROM HURTING?

In most cases, insulin injections hurt very little, if at all. However, there are a few things you can do to make the injections as painless as possible:

- ★ Use fresh needles for each injection. Even after just one or two uses, syringe and pen needles can become dull. Sharp needles cause the least amount of trauma to the skin.

- ★ Inject your insulin at room temperature. Cold insulin has a tendency to sting. When using a pen or vial for the first time, take it out of the fridge a half hour early so that it has time to warm up to room temperature.
- ★ Relax the muscles in the area where you are injecting. Tense muscles make the nerves in the area more sensitive.
- ★ For those with limited body fat, it may be necessary to pinch the area where you will inject so that the skin surface is hard. This ensures a quick, clean injection. A quick needle insertion causes the least amount of pain.
- ★ If you clean your skin with an alcohol pad, wait until it has dried completely before you inject.
- ★ Doses of 30 units or more may cause pressure to build up under the skin. Ask your physician if you can split large doses.
- ★ Avoid injecting into sensitive muscle by using a short needle (6mm or less).
- ★ Choose the thinnest needle possible. Remember, the higher the gauge, the thinner the needle.

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- ★ If pain persists despite using these techniques, try rubbing ice on your skin for a few minutes before injecting, or ask your doctor about using an injection port instead of injecting directly into your skin.

WHAT SHOULD I DO IF INSULIN LEAKS OUT AFTER THE INJECTION?

Occasionally, insulin may leak out of the skin after you remove the needle, even if you have left the needle in the skin for 5-10 seconds. Research has shown that the amount of insulin lost in these situations is usually minimal and will probably not affect blood glucose management. Unless large drops appear that run down your skin, you should not have to worry about replacing what is lost.

However, to ensure accurate and consistent dosing, it is best to do what you can to prevent leakage. Here are a few tricks:

1. When injecting, release the “pinch” on your skin before pressing down on the plunger.
2. Keep the needle in your skin a few seconds longer than usual.
3. If leakage occurs often, insert the needle and inject at a 45-degree angle rather than going straight into the skin.

IS IT OK TO THROW MY USED NEEDLES IN THE TRASH?

There are two things to consider when it comes to disposing sharp objects (often referred to as sharps) such as syringes, pen needles and lancets:

Local ordinances

Every municipality has its own rules about the handling of medical waste. Check with your local department of sanitation for details. Each state also has established guidelines regarding sharps disposal. The Centers for Disease Control (CDC) has more information about safe needle disposal in your area: www.cdc.gov/needledisposal.

The safety of those around you

Being a responsible person with diabetes means taking steps to ensure the safety of family, friends, domestic employees, sanitation workers and yes, even pets. Accidental needle sticks can produce serious pain and infections. One way to protect those around you is to place your used syringes, pen needles and lancets in a non-clear heavy-duty plastic jug with a secure screw-on cap. Don't bother recapping the needles... just throw them into the jug, and keep the jug in an out-of-the-way place. When the jug

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is full, seal the cap with strong tape and dispose according to local regulations (usually it is OK to just place in your normal trash). When traveling, bring a smaller container with you for your used items, and bring it home with you for safe disposal.

Another way to protect those around you is to purchase and use a device that clips, catches, and contains the needles. Do not break the needles off with your fingers, as you can easily stick yourself. And do not use scissors to clip off needles – the flying needle could hurt someone or become lost.

ARE LONGER NEEDLES BETTER THAN SHORTER NEEDLES?

Good news! In almost all cases, shorter needles are better than longer ones. For insulin to work, it only needs to get into the fat layer below the skin. While the amount of fat varies from person to person, skin thickness tends to be about the same – around 2mm. So needles that are at least 4mm long do the job quite well, producing normal absorption/action and no increase in leakage back onto the skin

surface. Glucose management does not suffer when switching from long to short needles, even in those who are considered obese. Needles that are too long can cause accidental injection into muscle, which alters the normal action of the medication and can be quite painful.

For these reasons, most healthcare organizations now recommend the use of shorter needles. Rarely is there a medical reason to use needles longer than 6mm. For those with a great deal of fat below the skin, use of short needles also eliminates the need to pinch the skin when administering the injection.