Your step-by-step guide to injection.
Table of Contents

How your insulin works ............................................. 1
  o Definitions to review
  • Insulin action curves ................................................... 2
    o Rapid-acting insulin
    o Long-acting insulin
    o Short-acting insulin
    o Intermediate-acting insulin
    o Premixed insulin

Learning about syringes .................................................. 5
  o Number of units you inject
  o Syringe size
  o Needle length
  o Pinch-up technique
  • Drawing and injecting one insulin ...................................... 6
  • Mixing, drawing and injecting insulins ................................. 7

Learning about pen needles ............................................... 9
  o Pen needle selection
  o Pinch-up guide
  o Pinch-up technique
  • Preparing and injecting with a disposable insulin pen .............. 10
  • Preparing and injecting with a reusable insulin pen ............... 11

Site selection and rotation .............................................. 12

Proper use and disposal ............................................... 13
How your insulin works

Definitions to Review:

**Onset of action:** The length of time before insulin reaches the bloodstream and starts working.

**Peak of action:** The time insulin is at its maximum strength or working the hardest to lower blood glucose.

**Duration:** How long the insulin continues to work in the body.

**Basal:** Steady and long-acting insulin that works between meals and throughout the night.

**Bolus:** Rapid burst of insulin that works to match food or lower high blood glucose.

**Basal-bolus therapy:** Also called “flexible therapy” because it allows for greater flexibility throughout the day. Meals do not have to be eaten at the same time every day and insulin can be taken prior to meals, whenever those meals are scheduled.
How your insulin works

**Rapid-acting insulin:** Starts to work very quickly, but lasts only a few hours. Injection is usually taken before a meal. This is a type of bolus insulin.

**Type of insulin:** Humalog®, NovoLog®, Apidra®

**Onset of Action:** Within 15 minutes
**Peak Action:** 1 to 2 hours
**Duration:** 3 to 4 hours

**Long-acting insulin:** Provides 24-hour insulin coverage and may be given 1 to 2 times per day. Injection is usually taken before bedtime and/or in the morning. This is a type of basal insulin.

**Type of insulin:** Lantus®, Levemir®

**Onset of Action:** 2 to 4 hours
**Peak Action:** No peak, stable
**Duration:** 20 to 24 hours
How your insulin works

**Short-acting insulin:** Starts to work quickly, but has a short duration of action. Injection is usually taken with meals. This is a type of bolus insulin.

*Type of insulin:* Humulin® R, Novolin® R

*Onset of Action:* 1/2 to 1 hour
*Peak Action:* 2 to 3 hours
*Duration:* 3 to 6 hours

**Intermediate-acting insulin:** Works more slowly than regular insulin, but lasts longer. Injection is usually taken 2 times per day (morning and night). This is a type of basal insulin.

*Type of insulin:* Humulin® N, Novolin® N

*Onset of Action:* 2 to 4 hours
*Peak Action:* 4 to 10 hours
*Duration:* 10 to 16 hours
How your insulin works

**Premixed insulin:** Single dose of insulin that combines either rapid-acting or short-acting and intermediate-acting insulin in a fixed ratio. Injection is usually taken 2 times per day (with breakfast and dinner). This is a type of basal-bolus insulin.

**Type of insulin:** NovoLog® Mix 70/30, Novolin® Mix 70/30, Humalog® Mix 75/25™, Humulin® Mix 70/30

**Onset of Action:** Varies
**Peak Action:** Varies
**Duration:** Up to 24 hours

**Type of insulin:** Humalog® Mix 50/50™, Humulin® Mix 50/50

**Onset of Action:** Varies
**Peak Action:** Varies
**Duration:** Up to 24 hours
Learning about syringes

1. Find the number of units you inject on color spectrum.

2. Now match that color to determine your appropriate syringe size.

3. You have a choice of needle lengths. Both require pinch up.

4. Be sure to use proper pinch-up technique.
Drawing and injecting one insulin

1. Wash your hands.
2. Get supplies.
3. Roll bottle if needed.
4. Wipe the top of the bottle with BD™ Alcohol Swab.
5. Pull plunger down to desired units.
6. Push needle into bottle.
7. Push plunger down.
8. Pull plunger down to desired units, filling syringe with insulin.
9. Remove air bubbles. Check to see if dose is correct.
Mixing, drawing and injecting insulins

1. Wash your hands.
2. Get supplies.
3. Roll cloudy insulin bottle.
4. Wipe the top of both insulin bottles with BD™ Alcohol Swab.
5. Pull plunger down to desired units.
6. Push needle into cloudy bottle.
7. Push plunger down. Do not draw out insulin.
8. Pull needle out of cloudy bottle.
9. Pull plunger down to desired units.
10. Push needle into clear bottle.

Continued on next page
Mixing, drawing and injecting insulins

12 Pull plunger down to desired units. Pull needle out of clear bottle.

13 Remove air bubbles. Check to see if dose is correct.

14 Push needle into cloudy bottle.

15 Pull plunger down to desired units.

16 Pull needle out of bottle.

17 Wipe the injection site with BD™ Alcohol Swab. Pinch up skin and push needle into skin.

18 Push the insulin in with the plunger. Pull needle out of skin.
Learning about pen needles

1. Choosing a pen needle is a matter of preference, technique and comfort.

2. Not all pen needles require pinch up.

3. When using either the 8mm x 31G or 12.7mm x 29G pen needle, be sure to use proper pinch-up technique.

*Some children as well as very thin or muscular teens and young adults, may want to use the pinch up technique if injecting into areas with minimal fat below the skin (i.e. legs, arms, abdomen) to further reduce the risk of intra-muscular injection.
Preparing and injecting with a disposable pen

1. Wash your hands.
2. Get supplies.
3. Remove the pen cap.
4. Wipe stopper with BD™ Alcohol Swab.
5. Take out new pen needle.
6. Position the needle along the axis of the pen.
7. Pierce the center of the cartridge.
8. Screw on the needle.
9. Pull off the outer and inner shield.
10. Follow the pen manufacturer’s directions to prepare or prime your particular pen.
12. Perform the injection using the recommended technique.
Preparing and injecting with a reuseable pen

1. Remove the pen cap.
2. Remove the cartridge holder from the pen body.
3. Insert the insulin cartridge into the cartridge holder.
4. Reattach the holder to the pen body. Wipe stopper with BD™ Alcohol Swab.
5. Take out new pen needle.
6. Position the needle along the axis of the pen.
7. Pierce the center of the cartridge.
8. Screw on the needle.
9. Pull off the outer and inner shield.
10. Follow the pen manufacturer’s directions to prepare or prime your particular pen.
12. Perform the injection using the recommended technique.
Site selection and rotation

How to rotate sites:
Each new injection should be about a finger’s width away from the last injection.

Injection sites:
- Upper Arm
- Thigh
- Abdomen
- Buttocks

Change sides
Rotate within sites
To maintain healthy injection sites, only use syringes or pen needles one time.

Needle reuse contributes to the build-up of scar tissue, which may interfere with insulin absorption. Insulin may not work as expected, if injected into that area.

Please remember that syringes and pen needles are sterile products that are designed for single use only and they are no longer sterile after one use.

Properly dispose of your syringes and pen needles.

After use, the needle should be removed by clipping it off with a BD Safe-Clip™ Needle Clipper and/or placing it into a BD™ Home Sharps Container or into an empty, resealable container.

Needles should be disposed of responsibly without risk to others. Follow local guidelines where applicable.

For more information on state regulations, visit www.BDdiabetes.com/disposal.
For more information, visit www.bd.com/us/diabetes