



Step-by-Step Patient Injection Guide



Helping all people
live healthy lives





**Your step-by-step
guide to injection.**

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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

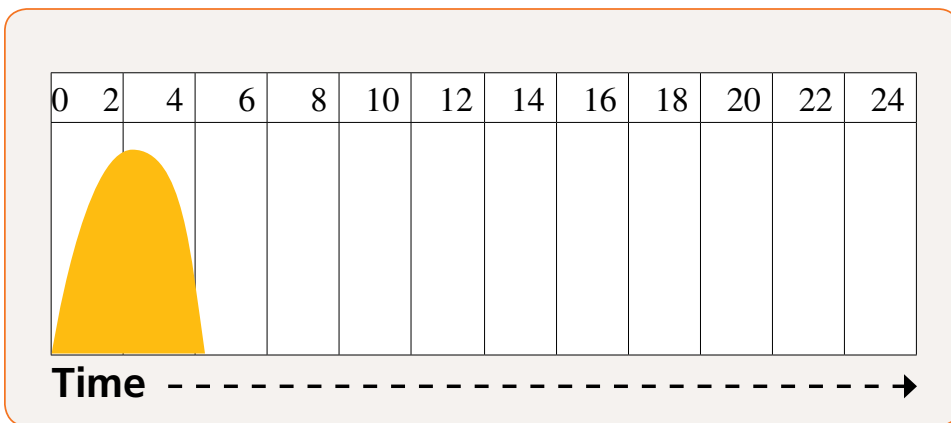
Rapid-acting insulin: Starts to work very quickly, but lasts only a few hours. Injection is usually taken before a meal. This is a type of bolus insulin.

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

Onset of Action: Within 15 minutes

Peak Action: 1 to 2 hours

Duration: 3 to 4 hours



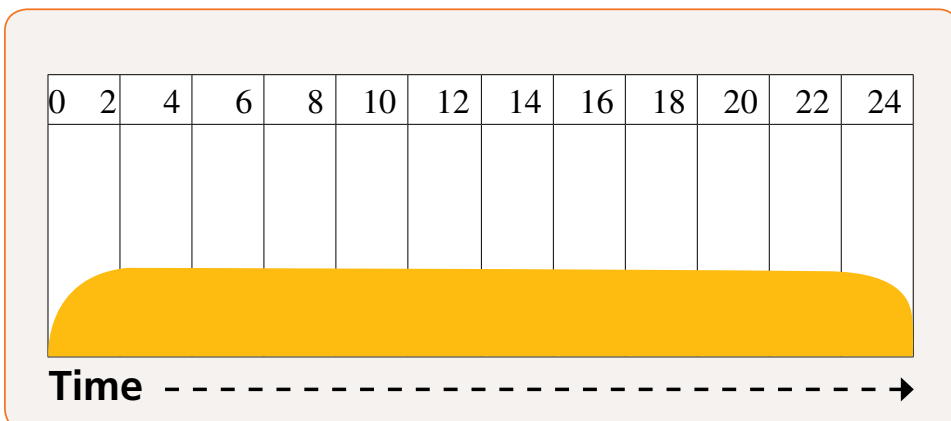
Long-acting insulin: Provides 24-hour insulin coverage and may be given 1 to 2 times per day. Injection is usually taken before bedtime and/or in the morning. This is a type of basal insulin.

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

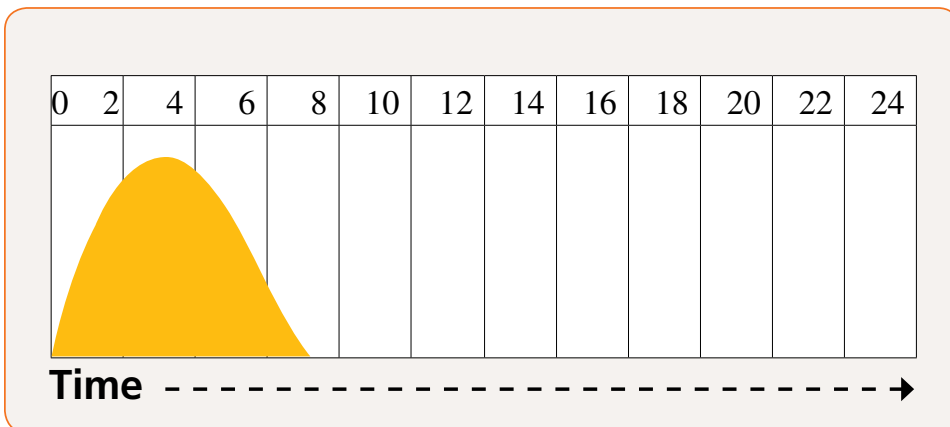
Short-acting insulin: Starts to work quickly, but has a short duration of action. Injection is usually taken with meals. This is a type of bolus insulin.

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



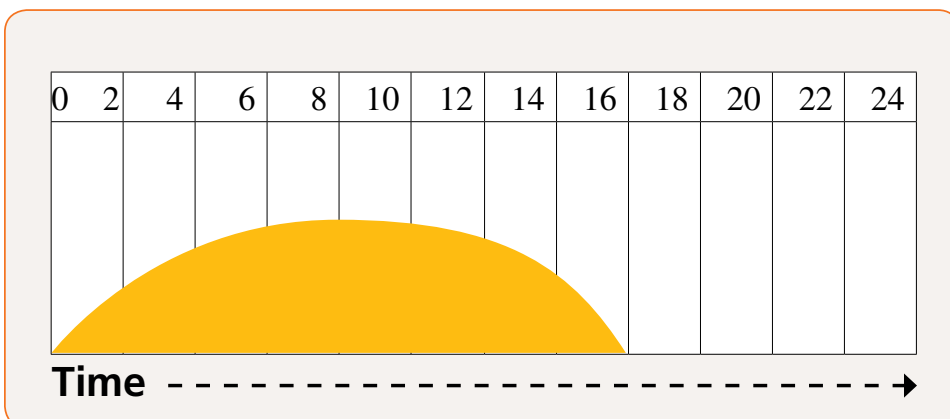
Intermediate-acting insulin: Works more slowly than regular insulin, but lasts longer. Injection is usually taken 2 times per day (morning and night). This is a type of basal insulin.

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

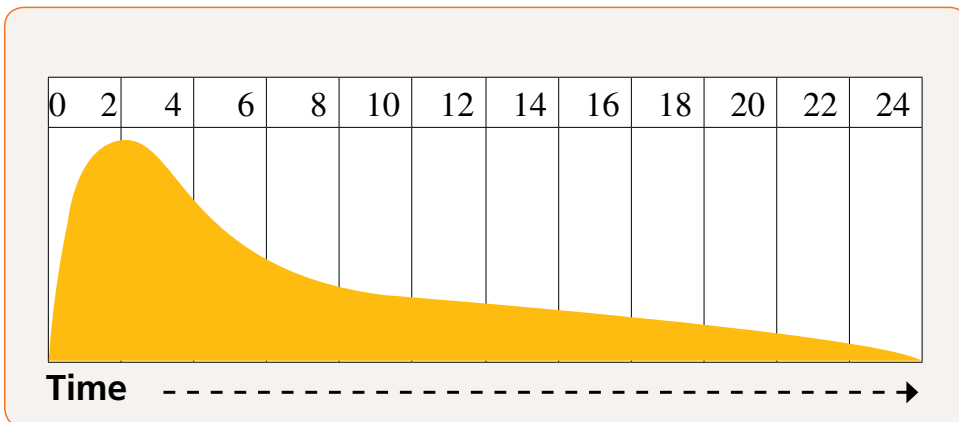
Premixed insulin: Single dose of insulin that combines either rapid-acting or short-acting and intermediate-acting insulin in a fixed ratio. Injection is usually taken 2 times per day (with breakfast and dinner). This is a type of basal-bolus insulin.

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

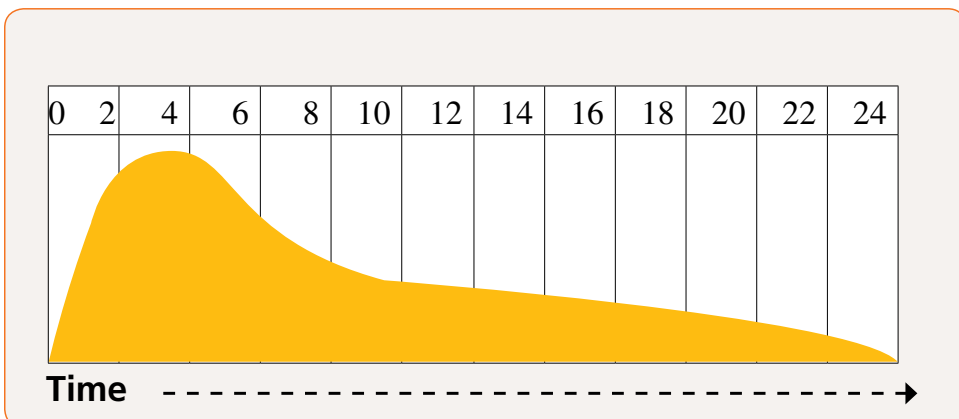


Type of insulin: Humalog® Mix 50/50™, Humulin® Mix 50/50

Onset of Action: Varies

Peak Action: Varies

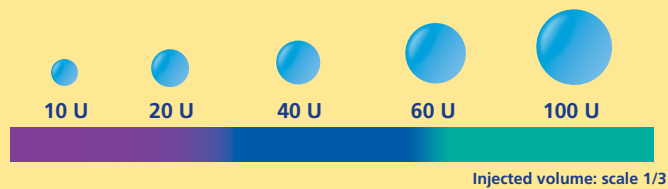
Duration: Up to 24 hours



Learning about syringes

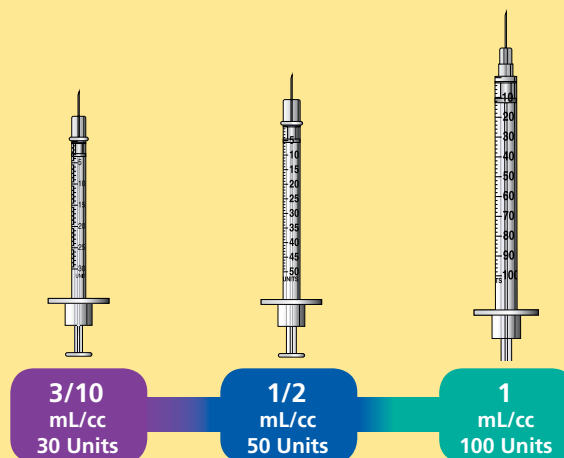
1

Find the number of units you inject on color spectrum.



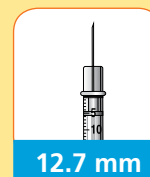
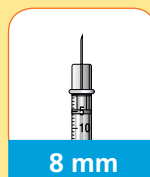
2

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.



Correct Technique

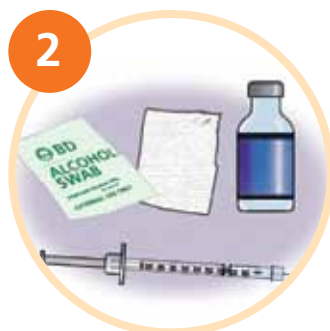


Incorrect Technique

Drawing and injecting one insulin



1 Wash your hands.



2 Get supplies.



3 Roll bottle if needed.



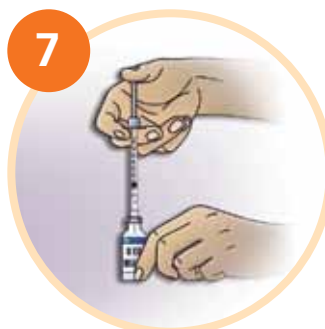
4 Wipe the top of the bottle with BD™ Alcohol Swab.



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.



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



11 Push plunger in. Pull needle out of skin.

Mixing, drawing and injecting insulins



1 Wash your hands.



2 Get supplies.



3 Roll **cloudy** insulin bottle.



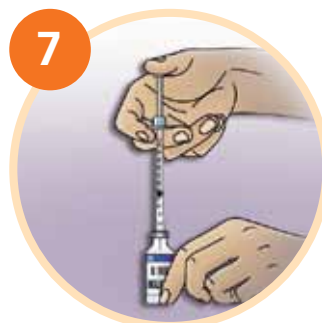
4 Wipe the top of both insulin bottles with BD™ Alcohol Swab.



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.

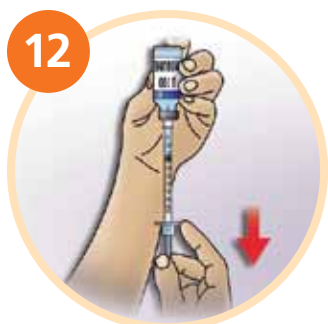


10 Push needle into **clear** bottle.



11 Push plunger down.

Mixing, drawing and injecting insulins



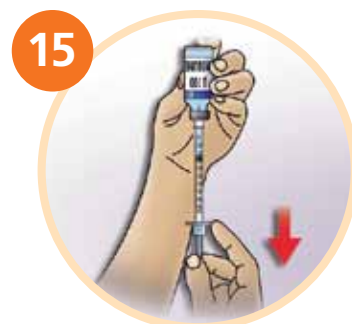
Pull plunger down to desired units. Pull needle out of **clear** bottle.



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



Push needle into **cloudy** bottle.



Pull plunger down to desired units.



Pull needle out of bottle.



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

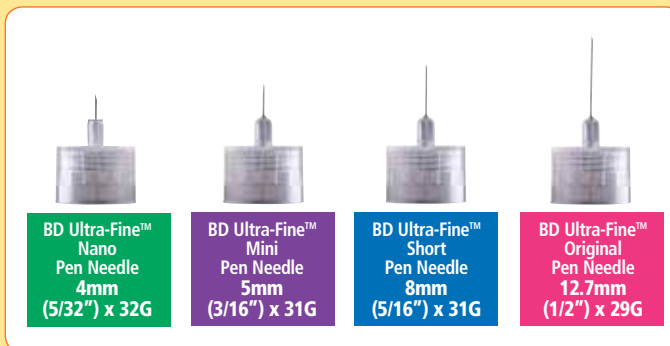


Push the insulin in with the plunger. Pull needle out of skin.

Learning about pen needles

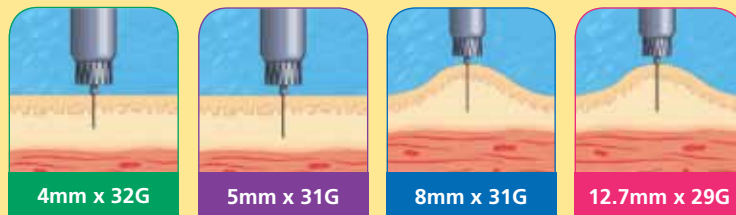
1

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



2

Not all pen needles require pinch up.



No pinch up*

No pinch up*

No pinch up*

No 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.



Correct Technique



Incorrect 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.



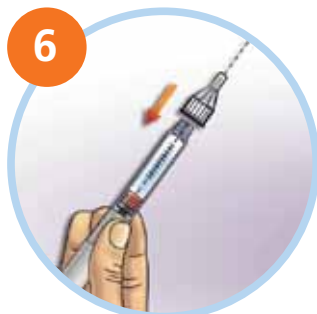
3 Remove the pen cap.



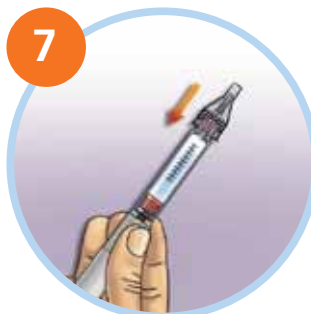
4 Wipe stopper with BD™ Alcohol Swab.



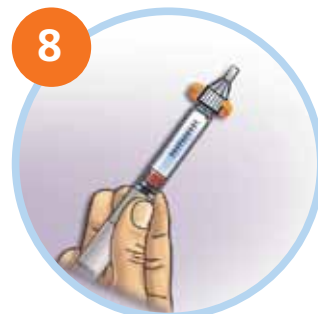
5 Take out new pen needle.



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.

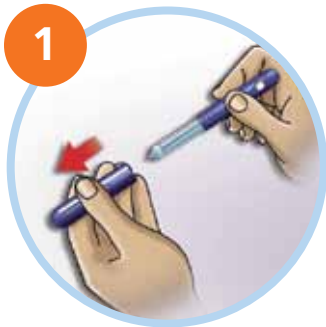


11 Wipe injection site with BD™ Alcohol Swab. Select insulin dose.



12 Perform the injection using the recommended technique.

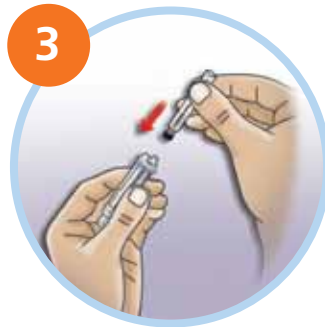
Preparing and injecting with a reusable pen



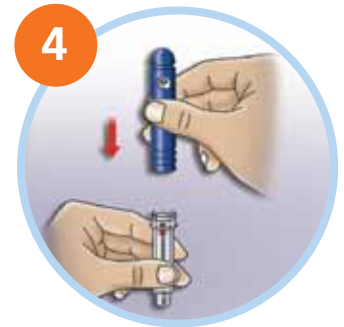
Remove the pen cap.



Remove the cartridge holder from the pen body.



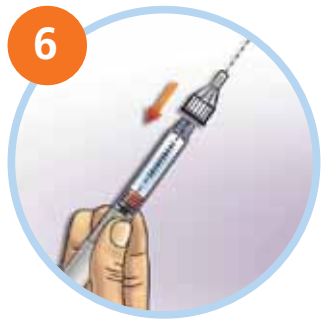
Insert the insulin cartridge into the cartridge holder.



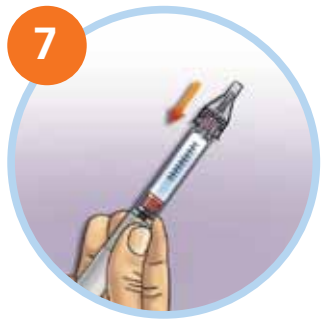
Reattach the holder to the pen body. Wipe stopper with BD™ Alcohol Swab.



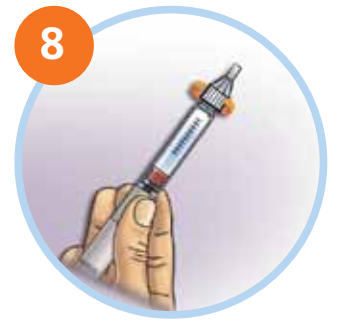
Take out new pen needle.



Position the needle along the axis of the pen.



Pierce the center of the cartridge.



Screw on the needle.



Pull off the outer and inner shield.



Follow the pen manufacturer's directions to prepare or prime your particular pen.

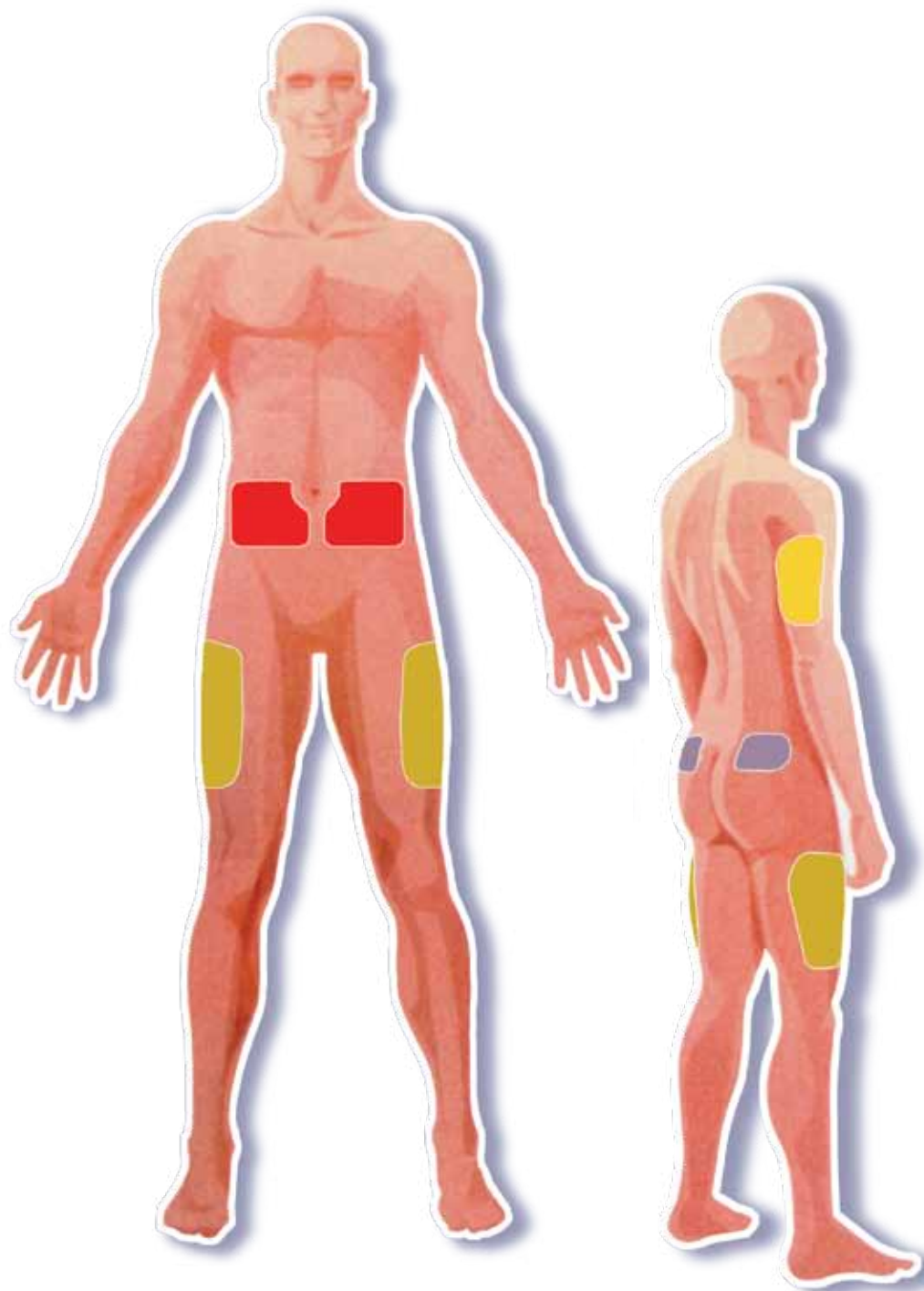


Wipe injection site with BD™ Alcohol Swab. Select insulin dose.



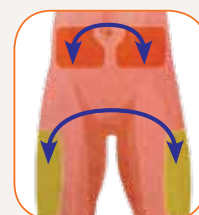
Perform the injection using the recommended technique.

Site selection and rotation

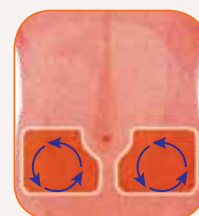


How to rotate sites:

Each new injection should be about a finger's width away from the last injection.



Change sides



Rotate within sites

Injection sites:



Upper Arm



Thigh



Abdomen



Buttocks

Proper use and disposal

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.



Used needle magnified 370 times



Same used needle magnified 2000 times

Photographs from Dieter Look and Kenneth Strauss study; "Nadeln mehrfach verwenden?" Diabetes Journal 1998, 10:31-34.



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

For more information, visit www.bd.com/us/diabetes

