

Insulin Administration

- Insulin glargine should not be mixed with other forms of insulin
- Rapid-acting insulin can be mixed with NPH, lente, and ultralente
- When rapid-acting insulin is mixed with either an intermediate- or long-acting insulin, the mixture should be injected within 15 minutes before a meal
- Insulin formulations may change; therefore, the manufacturer should be consulted in cases where its recommendations appear to conflict with the American Diabetes Association guidelines
- Syringe or pen needle reuse is not recommended for patients with poor personal hygiene, an acute concurrent illness, open wounds on hands, or decreased resistance to infection; small needles (30- and 31-gauge) develop barbed tips easily
- Insulin pens improve dose accuracy
- Insulin may be injected into the subcutaneous tissue of the upper arm and the anterior and lateral aspects of the thigh, buttocks, and abdomen (with the exception of a circle with a 2-inch radius around the navel)
- Injection site rotation reduces lipoatrophy but increases the variability of absorption (the abdomen region has the fastest absorption rate, followed by the arms, thighs, and buttocks; exercise increases the rate of absorption)
- Painful injections may be minimized by the following:
 - Injecting insulin at room temperature
 - Making sure no air bubbles remain in the syringe before injection
 - Waiting until topical alcohol (if used) has evaporated completely before injection
 - Keeping muscles in the injection area relaxed, not tense, when injecting
 - Penetrating the skin quickly
 - Not changing the direction of the needle during insertion or withdrawal
 - Not reusing needles
- Whenever possible, insulin should be self-administered by the patient
- If bruising, soreness, welts, redness, or pain occur at the injection site, the patient's injection technique should be reviewed by a physician or a diabetes educator