

TABLE 15.3 Types of Insulin

Type	Action	Onset of Action (Hours)	Duration of Action (Hours)
Insulin Lispro	Rapid	0.25–0.50	3–5
Insulin Aspart	Rapid	0.25	3–5
Insulin Glulisine	Rapid	0.25–0.50	1–1.5
Regular	Short	0.5–1	5–8
NPH	Intermediate	1–2	18–24
Lente	Intermediate	1–2.5	18–24
Levemir	Long	6–8	Up to 24
Lantus	Long	1–1.5	20–24
Ultralente	Long	0.5–3	20–36
Humulin 70/30	Premixed	0.5	2–4
Novolin 70/30	Premixed	0.5	2–12
NovoLog 70/30	Premixed	0.25	1–4
Humulin 50/50	Premixed	0.5	18–24
Humalog 75/25	Premixed	0.25	16–20

digested. If a patient is allowed nothing by mouth (NPO) for a test, insulin is not given because food is not given.

Intermediate-acting insulin is insulin mixed with a substance that makes the body absorb the insulin more slowly. This type of insulin looks cloudy in the bottle and must be mixed before injection.

Long-acting insulin can last up to one and a half days. It is usually taken in the morning or at bedtime.

If a patient's diabetes is fairly stable, different categories of insulin can be mixed to cover the next meal and beyond in one dose. For instance, a short- or immediate-acting insulin is used to treat the blood glucose increase that will occur with the meal the patient is eating or will soon eat. At the same time, the patient will receive a longer-acting insulin to help treat blood sugar increases that may occur in the hours following the meal, thus possibly preventing more injections throughout the day or night. This mixing is done by the patient or health-care worker, or a commercially prepared mixture can be used. The name of the insulin states the ratio of long-acting to short-acting insulin (e.g., 70/30). Commercially prepared insulin mixtures are available in a 10-mL vial (100 units per mL) or in an insulin pen. Insulin pens are ready to use with very little preparation. The patient screws on a sterile needle, dials in the desired dosage, and it is ready to inject (Fig. 15-3).

Patients with a history of hypoglycemia or poor control of blood glucose levels may receive insulin through a pump (discussed later in this chapter). The only category of insulin used with a pump is rapid- or short-acting insulin, and it is delivered at a base rate with programming available to provide extra insulin as needed.

Handling Insulin

Insulin should be refrigerated until the vial is opened because refrigeration extends the shelf life for 1 to 2 years (depending on manufacturer). Once the vial is opened, it may be kept at room temperature to avoid painful injections, but it must be discarded within 1 month. Insulin should never be kept at