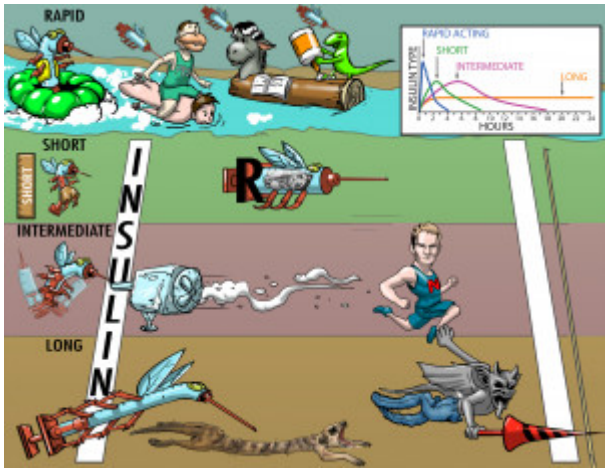
Insulin

Insulins for medical use are synthetically created analogs of the human hormone. Some are chemically altered in structure to change the rate of absorption and duration of action within the human body. When classified according to time course, insulin preparations fall into three major groups: short duration, intermediate duration, and long duration.



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Rapid Acting
River-rapid Insect-syringe
Rapid-acting insulin covers insulin needs for meals eaten at the same time of injection. This type is often combined with longer-acting insulin. The onset of action is about 15-30 minutes, peak action of 1-3 hours, and duration lasts 4-6 hours. Rapid onset, quick peak, and short duration.

Insulin Lispro (Humalog)
Insect-syringe Lips-pro on Human-log
Insulin Lispro (Humalog) is a rapid-acting (15-30 minutes) analog of regular insulin with a short duration (4-6 hours) and effectively peaks at around (1-3 hours). Because of its rapid onset, it can be administered at mealtimes.

Insulin Aspart (Novolog)
Insect-syringe Ass-parted-hair on Novel-log
Insulin Aspart (Novolog) is an analog of human insulin with a rapid onset (15-30 minutes), peak (1-3 hours), and short duration (4-6 hours). Due to its rapid onset of action, injections should be made 5-10 minutes before meals.

Insulin Glulisine (Apidra)
Insect-syringe Glue-lizard
Insulin Glulisine (Apidra) is a synthetic analog of natural human insulin with a rapid onset (15-30 minutes) and short duration (4-6 hours). Like insulin Lispro and Aspart, this drug should be administered close to the time of eating and reaches its peak effect at about (4-6 hours).

Short Acting
Short Insect-syringe
Short-acting insulin covers insulin needs when administered at least 30 minutes prior to meals as the onset of action is approximately 30 minutes, peak action within 1.5-3.5 hours, and duration lasting about 8 hours. This type of short-acting insulin may also be administered via IV in inpatient settings (e.g., to treat diabetic ketoacidosis).

Regular Insulin (Humulin R)
Regular-vial Insect-syringe
Regular insulin (Humulin R) is unmodified human insulin. For routine treatment of diabetes, it can be administered before meals to control postprandial hyperglycemia or infused subQ to provide basal glycemic control. It is supplied as a clear solution.

Intermediate Acting
In-the-middle Insect-syringe
Intermediate-acting insulin covers insulin needs for about half the day or overnight. It is often combined with rapid or short-acting insulin. This insulin peaks within about 4-6 hours and lasts 12 hours.

Isophane NPH (Humulin N)
Ice-fan on Neil-Patrick-Harris
Isophane NPH (Humulin N) is considered intermediate acting because the onset of action is delayed, and the duration is longer, lasting about 12 hours. Therefore, this insulin type cannot be administered at mealtime to control postprandial hyperglycemia, as it peaks at about 4-6 hours. If using for 24-hour

coverage, give in the morning and at bedtime and ensure meal times coincide with peak action during the day. At night, consider a bedtime snack to avoid nocturnal hypoglycemia.

Long Acting

Long Insect-syringe

Long-acting insulin covers insulin needs for about one full day. This type is often combined, when needed, with rapid or short-acting insulin. There is usually no pronounced peak time as the insulin is delivered at a steady level.

Detemir (Levemir)

Dead-meerkat

Insulin Detemir is a long-acting insulin analog used for basal control of insulin. It is distributed under the trade name Levemir and has been shown to cause less weight gain or episodes of hypoglycemia than the intermediate-acting insulin NPH. Detemir is indicated only as a subcutaneous injection and should not be mixed with other insulins in the same injection. Do not administer detemir IV or IM. Detemir insulin is a clear solution and should not be given if viscous or cloudy. Detemir differs from glargine, as there is a noticeable peak at about 3 to 9 hours, and the duration of action is anywhere from 6 to 24 hours and, therefore, often needs to be administered twice daily.

Glargine (Lantus)

Gargoyle-jeans with Lance

Insulin Glargine (Lantus) is usually given once per day to mimic the basal rate of insulin normally in the body as a long-acting insulin. Insulin glargine is indicated only as a subcutaneous injection and should not be mixed with other insulins in the same injection. Do not administer insulin glargine IV or IM. Glargine insulin is a clear solution and should not be given if viscous or cloudy. Its duration of action is about 20 to 24 hours and is usually given once per day. Twice a day dosing may be required in some individuals due to its slightly less glucose-lowering effect in the last 12 hours. There is no pronounced peak.
