

# INSULIN ADMINISTRATION

Preparation	Brand	Route	Administration	Mixing Insulins	Comments
<b>RAPID-ACTING</b>					
insulin	<b>Afrezza</b>	℞	oral inh	At the beginning of a meal	— Loss of drug effect if inhaler is mishandled. See full labeling.
insulin aspart	<b>NovoLog</b>	℞	SC, CSII, IV*	Within 5–10mins before a meal	<b>SC:</b> May mix with NPH insulin. Draw NovoLog into syringe first. Inject immediately after mixing. May dilute with Insulin Diluting Medium for NovoLog to 1:10 (U-10) or 1:2 (U-50) concentrations. <b>CSII:</b> Do not dilute/mix with other insulins. <b>IV:</b> Do not mix with other insulins
insulin glulisine	<b>Apidra</b>	℞	SC, CSII, IV	Within 15mins before a meal or 20mins after starting a meal	<b>SC:</b> May mix with NPH insulin. Draw Apidra into syringe first. Inject immediately after mixing. <b>CSII:</b> Do not dilute/mix with other insulins. <b>IV:</b> Do not mix with other insulins
insulin lispro	<b>Humalog</b>	℞	SC, IV*†, CSII†	Within 15mins before or immediately after a meal	<b>SC:</b> May mix with Humulin N. Draw Humalog into syringe first. Inject immediately after mixing. May dilute with STERILE DILUENT for Humalog to 1:10 (U-10) or 1:2 (U-50) concentrations. <b>CSII:</b> Do not dilute/mix with other insulins
<b>SHORT-ACTING</b>					
insulin injection regular (R)	<b>Humulin R U-100</b> <b>Novolin R</b>	OTC	SC, IV*	Individualize ≥3 times daily within 30mins before a meal	<b>SC:</b> May mix with longer-acting human insulins. Draw clear insulin into syringe first. Use syringes marked with U-100.
<b>INTERMEDIATE-ACTING</b>					
insulin isophane suspension (NPH)	<b>Humulin N</b> <b>Novolin N</b>	OTC	SC	Individualize	May mix with Humalog or Humulin R. Draw clear insulin into syringe first then Humulin N. May mix with other insulins. Draw clear insulin into syringe first then Novolin N. Rotate vial to mix. Should look uniformly cloudy. Use syringes marked with U-100. Rotate vial to mix. Should look uniformly cloudy. Use syringes marked with U-100 or U-40. Inject rapidly over 2–4secs to avoid clogging needle tip.
<b>SHORT- AND INTERMEDIATE-ACTING MIXTURES</b>					
insulin aspart protamine/insulin aspart	<b>NovoLog Mix 70/30</b>	℞	SC	Twice daily within 15mins before a meal	Do not mix with other insulins Roll vial, prefilled syringe 10 times until uniformly cloudy.
insulin isophane suspension (NPH)/regular insulin (R)	<b>Humulin 70/30</b> <b>Novolin 70/30</b>	OTC	SC	Individualize	See product label Do not change the ratio by adding NPH or Regular insulin to the vial. Use separate insulin formulations (Novolin N and Novolin R). Rotate vial to mix. Should look uniformly cloudy. Use syringes marked with U-100 or U-40. Inject rapidly over 2–4secs to avoid clogging needle tip.
insulin lispro protamine/insulin lispro	<b>Humalog Mix 50/50</b> <b>Humalog Mix 75/25</b>	℞	SC	Within 15mins before a meal	Do not mix with any other insulins Rotate vial to mix. Should look uniformly cloudy.
<b>LONG-ACTING</b>					
insulin degludec	<b>Tresiba</b>	℞	SC	Once daily at any time of day	Do not dilute/mix with other insulins Should look clear, colorless
insulin detemir	<b>Levemir</b>	℞	SC	Once daily (PM) or twice daily (12hrs apart)	Do not dilute/mix with other insulins Should look clear, colorless.
insulin glargine	<b>Basaglar</b> <b>Lantus</b> <b>Toujeo</b>	℞	SC	Once daily at the same time every day	Do not dilute/mix with other insulins Should look clear, colorless.
insulin injection regular (R)	<b>Humulin R U-500</b>	℞	SC	Individualize	See product label Caution with dosage. Should look water-clear. Use with U-500 insulin syringes.
<b>LONG-ACTING MIXTURES</b>					
insulin degludec/liraglutide	<b>Xultophy 100/3.6</b>	℞	SC	Once daily at same time each day, with or without food	Do not dilute/mix with other insulins Should look clear, colorless
insulin glargine/lixisenatide	<b>Soliqua 100/33</b>	℞	SC	Once daily within the hour prior to first meal	Do not dilute/mix with other insulins or solutions Should look clear, colorless to almost colorless.

**NOTES**

**Key:** CSII = continuous subcutaneous insulin infusion;  
 \*IV to be used in a clinical setting under proper medical supervision. †IV and CSII administration for Humalog U-100 only.  
 Rate of insulin absorption, onset and duration of action may be affected by the injection site, blood supply, temperature, exercise, and other variables. Caution with changes in strength, manufacturer, preparation, species of insulin source.  
 Not an inclusive list of medications and/or dosing instructions. Please see drug monograph at [www.eMPR.com](http://www.eMPR.com) and/or contact company for full drug labeling.

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