

INSULIN ADMINISTRATION (Part 1 of 2)

Preparation	Brand	Route	Administration	Mixing Insulins	Comments	
RAPID-ACTING						
insulin	Afrezza	Rx	oral inh	At the beginning of a meal	—	Loss of drug effect if inhaler is mishandled. See full labeling.
insulin aspart	Fiasp	Rx	SC, CSII, IV*	Individualize. SC: at start of meal or within 20mins after starting meal	Do not dilute/mix with other insulins	Should look clear, colorless. SC: use with intermediate or long-acting insulin.
	NovoLog	Rx	SC, CSII, IV*	Within 5–10mins before a meal	SC: 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. CSII: Do not dilute/mix with other insulins IV: Do not mix with other insulins	CSII: Change inj site at least every 3 days and reservoir at least every 6 days.
insulin glulisine	Apidra	Rx	SC, CSII, IV*	Individualize. SC: 15mins before meal or within 20mins after starting meal	SC: May mix with NPH insulin. Draw Apidra into syringe first. Inject immediately after mixing. CSII: Do not dilute/mix with other insulins IV: Do not mix with other insulins	SC: use with intermediate or long-acting insulin. CSII: Change inj site at least every 48hrs and reservoir at least every 2 days.
insulin lispro	Admelog	Rx	SC, IV*, CSII	Within 15mins before a meal or immediately after a meal	Do not dilute/mix with other insulins	SC: generally used with intermediate or long-acting insulin. CSII: Change inj site at least every 3 days and reservoir at least every 7 days.
	Humalog	Rx	SC, IV**, CSII†	Within 15mins before a meal or immediately after a meal	SC: May mix Humalog U-100 with NPH insulin. 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. CSII: Do not dilute/mix with other insulins	SC: generally used with intermediate or long-acting insulin. CSII: Change inj site at least every 3 days and reservoir at least every 7 days.
insulin lispro-aabc	Lyumjev	Rx	SC, IV**, CSII†	At the start of a meal or within 20mins after starting a meal	Do not dilute/mix with other insulins	SC: use with intermediate or long-acting insulin. IV: for Lyumjev U-100 only. Do not give U-200 intravenously. CSII: for Lyumjev U-100 only. Change inj site according to manufacturer's user manual, and reservoir at least every 9 days or according to the pump user manual, whichever is shorter.
SHORT-ACTING						
insulin injection regular (R)	Humulin R U-100	OTC	SC, IV*	Individualize. SC: ~30mins before a meal	SC: May mix with NPH insulin only. Draw Humulin R (clear) into syringe first then NPH. Inject immediately.	Use syringes marked with U-100. SC: use with intermediate or long-acting insulin.
	Humulin R U-500	Rx	SC	Individualize. ~30mins before a meal	Do not dilute/mix with other insulins	Caution with dosage. Should look clear, colorless. Use with U-500 insulin syringes.
	Novolin R	OTC	SC, IV*	Individualize. SC: ~30mins before a meal	SC: May mix with NPH insulin only. Draw Novolin R (clear) into syringe first then NPH. Inject immediately.	Use syringes marked with U-100. SC: use with intermediate or long-acting insulin.

(continued)

INSULIN ADMINISTRATION (Part 2 of 2)

Preparation	Brand	Route	Administration	Mixing Insulins	Comments	
INTERMEDIATE-ACTING						
insulin isophane suspension (NPH)	Humulin N	OTC	SC	Individualize	May mix with Humalog or Humulin R. Draw clear insulin into syringe first then Humulin N. Inject immediately.	Rotate vial or pen until uniformly white and cloudy. Use syringes marked with U-100.
	Novolin N	OTC	SC	Individualize	May mix with regular insulin only. Draw regular insulin (clear) into syringe first then Novolin N. Inject immediately.	Roll vial in horizontal position 10 times or move pen up and down 20 times until uniformly white and cloudy. Inject immediately.
SHORT- AND INTERMEDIATE-ACTING MIXTURES						
insulin aspart protamine/insulin aspart	NovoLog Mix 70/30	℞	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)	Humulin 70/30	OTC	SC	Individualize. ~30–45mins before a meal	Do not mix with other insulins	Rotate vial or pen until uniformly white and cloudy. Use syringes marked with U-100.
	Novolin 70/30	OTC	SC	Individualize. Twice daily ~30mins before a meal	Do not mix with other insulins	Roll vial in horizontal position 10 times or move pen up and down 20 times until uniformly white and cloudy. Inject immediately.
insulin lispro protamine/insulin lispro	Humalog Mix 50/50	℞	SC	Individualize. Usually twice daily within 15mins before a meal	Do not mix with any other insulins	Rotate vial or pen 10 times until uniformly white and cloudy. Inject immediately.
	Humalog Mix 75/25					
LONG-ACTING						
insulin degludec	Tresiba	℞	SC	Once daily at any time of day	Do not dilute/mix with other insulins	Should look clear, colorless.
insulin detemir	Levemir	℞	SC	Once daily with PM meal or at bedtime or twice daily (AM and PM)	Do not dilute/mix with other insulins	Should look clear, colorless. For T1DM, must be used with rapid- or short-acting insulin.
insulin glargine	Basaglar	℞	SC	Once daily at the same time every day	Do not dilute/mix with other insulins	Should look clear, colorless.
	Lantus					
	Semglee					
	Toujeo					
LONG-ACTING MIXTURES						
insulin degludec/liraglutide	Xultophy 100/3.6	℞	SC	Once daily at same time each day, with or without food	Do not dilute/mix with other insulins or solutions	Should look clear, colorless. Not for use in T1DM patients.
insulin glargine/lixisenatide	Soliqua 100/33	℞	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; T1DM = type 1 diabetes mellitus

*IV to be used in a clinical setting under proper medical supervision.

†IV and CSII administration for 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 and/or contact company for full drug labeling.

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