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|  | Ultra-Short acting insulins | Short-acting (regular) insulins | Intermediate acting insulins | Long acting insulins |
| **Drugs names** | Lispro, aspart, glulisine |  | Isophane (NPH) Lente insulin ( Humulin R, Novolin R) | Insulin glargine (lantus), Insulin detemir (Levemir) |
| **Physical characteristics** | Clear solution at neutral pH | Clear solution at neutral pH | Turbid suspension | Clear solution BUT forms precipitate (hexamer) at injection site. |
| **chemistry** | Monomeric analogue | Hexametric analogue |  | Hexametric analogue |
| **Route & time of administration** | S.C. 5 min (no more than 15 min) before meal  I.V. in emergency  2 – 3 times/day before each meal | S.C. 30 – 45 min before meal  I.V. in emergency  2 – 3 times/day before each meal | Given S.C. only not i.v.  Cannot be used in ketoacidosis or emergency | Given s.c., not intravenously  Should not be mixed with other insulins in the same syringe. |
| **Onset of action** | Fast 5 – 15 min ( S.C ) | rapid 30 – 45 min ( S.C ) | NPH 1-2 h.  Lente 1-3 | after 4-5 hrs |
| **Peak level** | 30 – 90 min | 2 – 4 hr | NPH 5-7 h.  Lente 4-8 h | Non  peakless profile |
| **Duration** | 3 – 5 hr Shorter | 6 – 8 hr longer | NPH 13-18 h  Lente 13-20 h | 24 h |
| **Other info** | mixed with another insulin preparation with NPH |  | Given in preparations with rapid acting insulin  (NPL= NPH / lispro)  (NPA= NPH / aspart) | Safer than NPH & Lente insulins |