

			contraindications
Normal Saline (NaCl) 0.9% Normal Saline	<ol style="list-style-type: none"> 1. volume replacement 2. Hypovolemic shock 3. Septic shock 	<ul style="list-style-type: none"> - [Na] = [Cl] = 154 mmol/liter - total osmolarity = 308 mOsmol/liter vs. 285 mOsm/L plasma - 25% remains in intravascular space 	<ol style="list-style-type: none"> 1. CHF 2. CKD 3. Liver cirrhosis
Half Normal Saline	<p>Used as "maintenance fluids"</p> <ol style="list-style-type: none"> 1. Replaces daily losses of sodium and water 2. Hyponatremia 3. Severe DKA <p>usually in combination with Potassium or dextrose.</p>	<ul style="list-style-type: none"> - [Na] = [Cl] = 77 mmol/liter - total osmolarity = 154 mOsmol/liter vs. 285 mOsm/L plasma - does not remain intravascular. - 0.45% Normal Saline 	
Lactated Ringer	<ul style="list-style-type: none"> - First-line replacement therapy in the perioperative period. - Fluid resuscitation after a blood loss due to trauma, surgery, or a burn injury. - Replace GI tract fluid losses. - Metabolic acidosis 	<ul style="list-style-type: none"> - Sodium, chloride, potassium, calcium, and lactate. - Isotonic: osmolarity 286 mOsm/L - 25% remains in intravascular space - Lactate metabolized to bicarbonate - Acts as buffer in acidotic states - Most common use: trauma resuscitation 	<ul style="list-style-type: none"> - Poor liver function. (affect lactate metabolism → Lactic acidosis) - Hyperalkalosis - Citrated blood transfusions (Clumping of red cells if it is co-administered with blood products)
Hypertonic Saline	<ol style="list-style-type: none"> 1. Elevated intracerebral pressure 2. Severe hyponatremia 	<ul style="list-style-type: none"> - Hypertonic: ~900 mOsm/liter - Draws fluid out of tissues into vascular space 	
Dextrose Solution 5%	<ol style="list-style-type: none"> 1. replacing water deficit 2. patients with hyponatremia 3. it is employed as a measure to prevent the catabolic state (i.e. hypoglycemia and ketosis) that follows prolonged fasting (e.g. keeping the patient NPO before surgery). 		These solutions are irritant to veins.