

# Lactated Ringers

**Generic Name:** sodium chloride, sodium lactate, potassium chloride, and calcium chloride

Concentration of Electrolytes (mEq/liter): Sodium 130; Potassium 4; Calcium 3; Chloride 110; Lactate (CH<sub>3</sub>CH (OH) COO<sup>-</sup>) 28

Lactated Ringer's Injection, produces a metabolic alkalinizing effect. Lactate ions are metabolized ultimately to carbon dioxide and water, which requires the consumption of hydrogen cations.

Lactated Ringer's Injection USP provides electrolytes and is a source of water for hydration. It is capable of inducing diuresis depending on the clinical condition of the patient. This solution also contains lactate, which produces a metabolic alkalinizing effect.

## Use with caution with:

1. Hyperkalemia
2. Severe renal failure (potassium)
3. Severe hepatic failure (impaired lactate clearance)
4. Severe metabolic acidosis or alkalosis (potassium and worsening alkalosis)
5. Neonates and infants less than 6 months (lactate effects on neonates)

## Contraindications:

1. Do not give with other calcium-containing infusion solutions including Ceftriaxone. (Causes precipitation)

## Warnings:

Solutions containing lactate are not for use in the treatment of lactic acidosis.

Solutions containing lactate should be used with great care in patients with metabolic or respiratory alkalosis, and in those conditions in which there is an increased level or an impaired utilization of lactate, such as severe hepatic insufficiency.

Solutions containing sodium ions should be used with great care, if at all, in patients with congestive heart failure, severe renal insufficiency, and in clinical states in which there is sodium retention with edema.

Solutions containing potassium ions should be used with great care, if at all, in patients with hyperkalemia, severe renal failure, and in conditions in which potassium ions retention is present.

In patients with diminished renal function, administration of solutions containing sodium or potassium ions may result in sodium or potassium retention.

**Approved for Distribution:**     **Julia Martin, M.D., FACEP**  
  **State Medical Advisor**  
  **Kentucky Board of Emergency Medical Services**