



# **Respiratory stimulants**



## Respiratory stimulants

### DEFINITION

- It is defined as "the drug or chemical agent which is used to stimulate the respiratory system or restore the normal respiration when lungs are unable to eliminate sufficient amount of carbon dioxide and unable to take sufficient amount of oxygen molecule are collectively known as respiratory stimulant.
- It include the class of those drug which is used to stimulate the CNS i.e Central nervous system of the body, hence it is known as CNS stimulator
- It Also stimulate the chemo receptor and vasomotor center (regulates blood vessel diameter ) of the body

## 1. Doxapram

Mechanism of Action Produces respiratory stimulation in medulla (which propagates stimulation to other parts of brain & spinal cord) through peripheral carotid chemoreceptors.

Pharmacokinetics

Onset: 20-40 sec Duration: 5-12 min (single IV injection)

Peak Plasma Time: 1-2 min Half-life: 3.4 hr (2.4-4.1 hr)

Dosages:

1–5 mg/kg, IV, in dogs and cats, or 1–2 drops under the tongue of apneic neonates.

In adult horses, the dosage is 0.5–1 mg/kg, IV, while foals are dosed carefully at 0.02–0.05 mg/kg/min, IV



## Caffeine

- Mechanism of Action
- Methylxanthine; promotes cAMP (Cyclic adenosine monophosphate )accumulation
- by inhibiting phosphodiesterase; increases medullary respiratory center sensitivity
- to carbon dioxide; may prevent apnea by acting as an adenosine receptor antagonist.
- The CNS stimulant action of these drugs also contributes to improved respiratory function, as also the improvement in circulatory and renal function in cardiac asthma of dogs.

### Pharmacokinetics

- Half-Life: 72-96hr
- Metabolism: hepatic CYP1A2
- Excretion: Urine

### DOSE:

Caffeine and sodium benzoate: 250 mg IV/IM once

