***Overview on Some Muscle Relaxants***

**Methocarbamol** is a **centrally acting muscle relaxan**t chemically related to guai-fenesin. Its exact mechanism of action is unknown, and it has no direct relaxant effect on striated muscle, nerve fibers, or the motor endplate. It also has a sedative effect. In dogs, cats, and horses, methocarbamol is indicated as adjunct therapy of acute inflammatory and traumatic conditions of skeletal muscle and to reduce muscle spasms. Because methocarbamol is a CNS depressant, it should not be given with other drugs that depress the CNS. Over-dosage is generally characterized by CNS depression, but emesis (small animals), salivation, weakness, and ataxia may be seen.

**Guaifenesin** (glyceryl guaiacolate) is a **centrally acting muscle relaxant** that is believed to depress or block nerve impulse transmission at the internuncial neuron level of the subcortical areas of the brain, brain stem, and spinal cord. It also has mild analgesic and sedative actions. Guaifenesin is given IV to induce muscle relaxation as an adjunct to anesthesia for short procedures. It relaxes both laryngeal and pharyngeal muscles, allowing easier intubation, but has little effect on diaphragm and respiratory function. It may cause transient increases in cardiac rate and decreases in blood pressure. It is also used in treatment of horses with exertional rhabdomyolysis and in dogs with strychnine intoxication. Overdose results in apneustic breathing, nystagmus, hypotension, and contradictory muscle rigidity. Treatment of overdose is supportive until the drug is cleared to nontoxic levels.

**Benzodiazepines,** such as diazepam, affect polysynaptic reflexes at the supraspinal level, act as a **spinal cord depressant** at the interneuronal level, and inhibit presynaptic acetylcholine release. Clinically, diazepam is used as an adjunct to anesthesia, in the management of clinical signs of tetanus, and in the treatment of functional urethral obstruction and urethral sphincter hypertonus in cats.

**Dantrolene** is a **hydantoin derivative** that is structurally and pharmacologically different from other skeletal muscle relaxants. Dantrolene has a direct action on muscle, probably by interfering with the release of calcium from the sarcoplasmic reticulum. It has no discernible effects on respiratory and cardiac function but can cause dizziness and sedation. In veterinary medicine, dantrolene is used in the treatment of malignant hyperthermia in various species, porcine stress syndrome, equine postanesthetic myositis, and equine exertional rhabdomyolysis

**Phenytoin** is a **hydantoin derivative**, primarily used as an anticonvulsant in humans. Phenytoin has shown efficacy in some horses susceptible to exertional rhabdomyolysis. Phenytoin may alter the function of neurotransmitters at the neuromuscular junction, the release of calcium from the sarcoplasmic reticulum, and sodium flux at the sarcolemma. Dosages are adjusted in horses to maintain serum concentrations of 5–10 μg/mL.

SOURCE: <http://www.merckmanuals.com/vet/pharmacology/systemic_pharmacotherapeutics_of_the_muscular_system/skeletal_muscle_spasmolytics.html>