# MALIGNANT HYPERTHERMIA

When malignant hyperthermia (MH) has been diagnosed, it's important to treat it immediately.[1] MH is characterized by the uncontrolled release of calcium from the sarcoplasmic reticulum into the myoplasm.[2]

**THE SIGNS OF MH INCLUDE[1]:**

**truncal and/or masseter muscle rigidity | increasing end tidal $CO_2$ | tachycardia**
**high body temperature | acidosis | rhabdomyolysis | hypercarbia | hyperkalemia**

## RECONSTITUTING AND ADMINISTERING RYANODEX® (dantrolene sodium) for injectable suspension IN LESS THAN 1 MINUTE.[3,4]

**STEP 1**

- Add 5 mL sterile water for injection (without bacteriostatic agent) to each 250 mg vial of RYANODEX®

**STEP 2**

- Shake the vial until the medication is mixed thoroughly
  - should take no more than 10 seconds
  - suspension should be a uniform orange color

**STEP 3**

- Draw the reconstituted suspension into the syringe
  - based on a 50 mg/mL concentration to achieve the MHAUS recommended loading dose of 2.5 mg/kg
  - for example, 3.5 mL RYANODEX® (175 mg dantrolene sodium) would provide a loading dose for a 70 kg patient

**STEP 4**

- RYANODEX® should be administered by intravenous push
- RYANODEX® can be administered either
  - into the intravenous catheter while an intravenous infusion of 0.9% sodium chloride injection, or 5% dextrose injection, is freely running; or
  - into the indwelling catheter—after assuring its patency—without a freely running infusion. Flush the line to assure that there is no residual RYANODEX® remaining in the catheter

MHAUS = Malignant Hyperthermia Association of the United States.

**INDICATION**
RYANODEX® (dantrolene sodium) for injectable suspension is indicated for the treatment of malignant hyperthermia in conjunction with appropriate supportive measures, and for the prevention of malignant hyperthermia in patients at high risk.

**CUSTOMER SERVICE: 855.318.2170**

**Please see full Prescribing Information for complete dosage and administration information.**

Ryanodex®
(dantrolene sodium)
for injectable suspension

# DOSAGE SCHEDULE TO TREAT MH

- Based on recommended loading dose of 2.5 mg per kg[1]
- Chart calculated using 250 mg vials of RYANODEX® (dantrolene sodium) for injectable suspension reconstituted with 5 mL of sterile water for injection USP (without a bacteriostatic agent)[3]
- In case of emergency, contact the 24-hour MHAUS Hotline at 800.644.9737

## RYANODEX® DOSAGE CHART[3]

| Patient's weight in kg | Patient's weight in pounds | Number of 250 mg vials to open | mg dosage needed | mL of reconstituted RYANODEX® to administer |
|---|---|---|---|---|
| 5 | 11 | 1 | 12.5 mg | 0.25 mL |
| 10 | 22 | 1 | 25.0 mg | 0.50 mL |
| 15 | 33 | 1 | 37.5 mg | 0.75 mL |
| 20 | 44 | 1 | 50.0 mg | 1.00 mL |
| 25 | 55 | 1 | 62.5 mg | 1.25 mL |
| 30 | 66 | 1 | 75.0 mg | 1.50 mL |
| 35 | 77 | 1 | 87.5 mg | 1.75 mL |
| 40 | 88 | 1 | 100.0 mg | 2.00 mL |
| 45 | 99 | 1 | 112.5 mg | 2.25 mL |
| 50 | 110 | 1 | 125.0 mg | 2.50 mL |
| 55 | 121 | 1 | 137.5 mg | 2.75 mL |
| 60 | 132 | 1 | 150.0 mg | 3.00 mL |
| 65 | 143 | 1 | 162.5 mg | 3.25 mL |
| 70 | 154 | 1 | 175.0 mg | 3.50 mL |
| 75 | 165 | 1 | 187.5 mg | 3.75 mL |
| 80 | 176 | 1 | 200.0 mg | 4.00 mL |
| 85 | 187 | 1 | 212.5 mg | 4.25 mL |
| 90 | 198 | 1 | 225.0 mg | 4.50 mL |
| 95 | 209 | 1 | 237.5 mg | 4.75 mL |
| 100 | 220 | 1 | 250.0 mg | 5.00 mL |
| 105 | 231 | 2 | 262.5 mg | 5.25 mL |
| 110 | 242 | 2 | 275.0 mg | 5.50 mL |
| 115 | 253 | 2 | 287.5 mg | 5.75 mL |
| 120 | 264 | 2 | 300.0 mg | 6.00 mL |
| 125 | 275 | 2 | 312.5 mg | 6.25 mL |
| 130 | 286 | 2 | 325.0 mg | 6.50 mL |
| 135 | 297 | 2 | 337.5 mg | 6.75 mL |
| 140 | 308 | 2 | 350.0 mg | 7.00 mL |
| 145 | 319 | 2 | 362.5 mg | 7.25 mL |
| 150 | 330 | 2 | 375.0 mg | 7.50 mL |

Labeled dose range of 1 to 10 mg/kg with a maximum cumulative dose of 10 mg/kg. If the physiologic and metabolic abnormalities of MH continue, administer additional doses.[3]

### IMPORTANT SAFETY INFORMATION

RYANODEX® (dantrolene sodium) for injectable suspension is not a substitute for appropriate supportive measures in the treatment of malignant hyperthermia (MH), including:

- Discontinuing triggering anesthetic agents
- Increasing oxygen
- Managing the metabolic acidosis
- Instituting cooling when necessary
- Administering diuretics to prevent late kidney injury due to myoglobinuria (the amount of mannitol in RYANODEX® is insufficient to maintain diuresis)

Precautions should be taken when administering RYANODEX® preoperatively for the prevention of malignant hyperthermia, including monitoring vital signs, avoiding known triggering agents, and monitoring for early clinical and metabolic signs of malignant hyperthermia that may indicate additional treatment is needed.

The administration of dantrolene sodium is associated with loss of grip strength and weakness in the legs, as well as drowsiness, dizziness, dysphagia, dyspnea, and decreased inspiratory capacity. Patients should not be permitted to ambulate without assistance until they have normal strength and balance. Care must be taken to prevent extravasation of RYANODEX® into the surrounding tissue due to the high pH of the reconstituted RYANODEX® suspension and potential for tissue necrosis.

**References: 1.** Emergency therapy for malignant hyperthermia [poster]. Effective September 2011. Malignant Hyperthermia Association. www.mhaus.org. **2.** Rosenberg H. Sambuughin N, Riazi S, Driksen R. Malignant hyperthermia susceptibility. NCBI Bookshelf Posted January 31, 2013. http://www.ncbi.nlm.nih.gov/books/NBK1146/?report=printable. Accessed June 30, 2014. **3.** RYANODEX [package insert]. Woodcliff Lake, NJ: Eagle Pharmaceuticals, Inc.; 2014. **4.** Data on file. Eagle Pharmaceuticals, Inc.

**Please see full Prescribing Information for complete dosage and administration information.**


50 Tice Blvd, Suite 315, Woodcliff Lake, NJ 07677 (201) 326-5300 8/2014 RYN14-0012-01

Ryanodex®
(dantrolene sodium)
for injectable suspension