

Magnesium Toxicity

Oral magnesium is available in over the counter antacids, laxatives, and magnesium supplements. Forms of magnesium found in oral products include magnesium hydroxide, magnesium oxide, magnesium citrate, magnesium sulfate, and magnesium gluconate. Most cases of magnesium toxicity occur in adults following the overuse or misuse of laxatives in an effort to lose weight or to relieve constipation. Unintentional pediatric ingestions are not expected to result in hypermagnesemia.

Only 30% of orally administered magnesium is absorbed from the gastrointestinal tract. Excessive amounts of ingested magnesium are predominately renally excreted; therefore, normal kidney function is essential for clearance. Hypermagnesemia rarely occurs after acute or chronic overexposure except in patients with renal insufficiency or in patients with normal renal function who have taken a massive overdose.

Elevated serum magnesium concentrations block neurotransmission by inhibiting acetylcholine release. Magnesium also antagonizes calcium channel function and intracellular calcium influx, impairing cardiac conduction and muscle contraction. The normal magnesium serum concentration is 1.5-2.5 mEq/L. At a serum concentration of 3 mEq/L, nausea, vomiting and weakness may be seen; at 4 mEq/L, drowsiness and sweating; at 5 mEq/L, QRS and P-R prolongation and loss of deep tendon reflexes; at 6 to 7 mEq/L, bradycardia and hypotension; and at 10 to 15 mEq/L, voluntary muscle paralysis, heart block, and respiratory depression.

The treatment of magnesium toxicity consists of replacing fluids and electrolytes lost by excessive catharsis and treating hypotension with intravenous fluids and dopamine or norepinephrine. Calcium chloride 10 percent at a dose of 5-20 mEq intravenously may temporarily alleviate respiratory depression and ECG changes. Hemodialysis rapidly removes magnesium. In cases of acute ingestion of magnesium-containing products, activated charcoal is not effective in preventing GI absorption.

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DID YOU KNOW THAT... new synthetic marijuana products are being sold legally?

In March 2011, the DEA enacted a year-long emergency ban on five synthetic cannabinoid chemicals that were found in products with names such as "K2" and "Spice". To evade the DEA scheduling of the compounds, makers of fake pot substances have changed the chemical make-up of these products. These newer synthetic substances are sold as "K3", "K4", "Barely Legal" and other names. Users of synthetic marijuana may experience stimulant-like effects including tachycardia, hypertension, agitation and seizures. Although not routinely tested for in hospitals, NMS Labs (www.nmslabs.com) in PA can perform blood and urine tests that identify synthetic marijuana compounds and metabolites.

