

Magnesium Chloride Vs Magnesium Sulfate

According to Daniel Reid, author of *The Tao of Detox*, magnesium sulfate, commonly known as Epsom salts, is rapidly excreted through the kidneys and therefore difficult to assimilate. This would explain in part why the effects from Epsom salt baths do not last long and why you need more magnesium sulfate in a bath than magnesium chloride to get similar results. Magnesium chloride is easily assimilated and metabolized in the human body.[i] Epsom salts are used by parents of children with autism because of the sulfate, which they are sometimes deficient in; sulfate is also crucial to the body and is wasted in the urine of autistic children.

Dr. Jean Durlach et al, at the Université P. et M. Curie, Paris, wrote a paper about the relative toxicities between magnesium sulfate and magnesium chloride. They write, "The reason of the toxicity of pharmacological doses of magnesium using the sulfate anion rather than the chloride anion may perhaps arise from the respective chemical structures of both the two magnesium salts. Chemically, both $MgSO_4$ and $MgCl_2$ are hexa-aqueous complexes. However $MgCl_2$ crystals consist of dianions with magnesium coordinated to the six water molecules as a complex, $[Mg(H_2O)_6]^{2+}$ and two independent chloride anions, Cl^- . In $MgSO_4$, a seventh water molecule is associated with the sulphate anion, $[Mg(H_2O)_6]^{2+} + [SO_4 \cdot H_2O]$. Consequently, the more hydrated $MgSO_4$ molecule may have chemical interactions with paracellular components, rather than with cellular components, presumably potentiating toxic manifestations while reducing therapeutic effect."

$MgSO_4$ is not always the appropriate salt in clinical therapeutics.

$MgCl_2$ seems the better anion-cation association to be used in many clinical and pharmacological indications.[ii] Dr. Jean Durlach et al

These researches also studied ionic fluxes in the two directions between the mother and the fetus. They found that there was a greater positive effect when $MgCl_2$ was used and that $MgSO_4$ could not guarantee the fetal needs in sodium and potassium exchange like $MgCl_2$ could. Dr. Durlach summarized saying, " $MgCl_2$ interacts with all exchangers while the interaction of $MgSO_4$ is limited to paracellular exchangers, and $MgCl_2$ increases the flux ratio between mother to fetus while $MgSO_4$ decreases it."

Dropping levels of magnesium during pregnancy leads to premature contraction and this has been treated by allopathic medicine mostly with magnesium sulfate. But high-dosage, tocolytic magnesium sulfate administered to pregnant women during preterm labor can be toxic, and sometimes lethal, for their newborns.[iii] A Medline's search found $MgSO_4$ had 53 reports of its use in prematures,[iv] whereas $MgCl_2$ had only 4 papers of its use. The paper cited just above showed the results of severe overdose of the mothers, 50 grams or more of $MgSO_4$. Clearly too much is toxic, but other studies show safety and efficacy at lower doses. Magnesium sulfate given to women immediately before very preterm birth may improve important pediatric outcomes. No serious harmful effects have been

seen at lower dosage levels.

Chloride is required to produce a large quantity of gastric acid each day and is also needed to stimulate starch-digesting enzymes. We may use magnesium as oxide or carbonate but then we need to produce additional hydrochloric acid to absorb them. Many aging individuals, especially with chronic diseases who desperately need more magnesium cannot produce sufficient hydrochloric acid and then cannot absorb the oxide or carbonate.

Sulfate is also important and has an influence over almost every cellular function. Sulfate attaches to phenols and makes them less harmful, and sets them up for being excreted from your kidneys. A lot of these potentially toxic molecules are in food. Sulfate is also used to regulate the performance of many other molecules. Many systems in the body will not function well in a low-sulfate environment. Sulfur is so critical to life that the body will apparently borrow protein from the muscles to keep from running too low.

Though magnesium sulfate will save your life in emergency situations as quickly and easily as magnesium chloride, magnesium chloride fits the bill as a universal medicine, magnesium sulfate does not. Magnesium sulfate is a close cousin whose effect, form and toxicity demands it be used in special applications when the sulfur is needed.

...."both magnesium as well as chloride have other important functions in keeping us young and healthy. Chloride, of course, is required to produce a large quantity of gastric acid each day and is also needed to stimulate starch-digesting enzymes. Magnesium is the mineral of rejuvenation and prevents the calcification of our organs and tissues that is characteristic of the old-age related degeneration of our body.

Using other magnesium salts is less advantageous because these have to be converted into chlorides in the body anyway. We may use magnesium as oxide or carbonate but then we need to produce additional hydrochloric acid to absorb them. Many aging individuals, especially with chronic diseases who desperately need more magnesium cannot produce sufficient hydrochloric acid and then cannot absorb the oxide or carbonate. Epsom salt is magnesium sulphate. It is soluble but not well absorbed and acts mainly as a laxative. Chelated magnesium is well absorbed but much more expensive and lacks the beneficial contribution of the chloride ions. Orotates are good but very expensive for the amount of magnesium that they provide and both orotates and chelates seem to lack the infection-fighting potential of the magnesium chloride."....