

Bioavailability: magnesium is not just magnesium ...

... because the bioavailability of magnesium salts depends on various factors.

A major factor influencing absorption is the **solubility of magnesium** salts in water. Accordingly, more highly soluble salts can be better absorbed. By chelating with amino acids, magnesium can be made more water-soluble. This can **improve absorption**, especially in patients with intestinal disorders.

However, **absorption is also related to the prevalent pH value in a specific area of the gastrointestinal tract**. The solubility of each magnesium compound changes in response to the naturally fluctuating pH-conditions along the intestinal tract. For absorption, elemental magnesium must first be released from its salt compound. The efficiency of this process primarily depends on the prevalent pH-value. The higher the pH value, the poorer the solubility of the compound and consequently the bioavailability. Therefore, people who use proton pump inhibitors, generally have a poorer magnesium intake. Other factors such as intestinal disorders, the microbiome, nutrition and other individual parameters also determine the pH value of the digestive tract.^{(1)(2)**}

A further distinctive feature of the different magnesium compounds is their magnesium content. For example, magnesium oxide supplies a lot of magnesium, but unfortunately it is only easily soluble in an acidic pH.



Magnesium fulfills a wide range of functions in almost all metabolic processes in the cell. It is particularly important for the interaction of muscles and nerves, for all energy-dependent processes, the creation of strong teeth and bones as well as for the electrolyte balance in the body.



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The intelligent way of magnesium

7-Salt Magnesium is magnesium from the expert and the doctor's first choice. Biogena product development has created a capsule with an ideal mixture of various soluble and magnesium-rich compounds. This ensures a good magnesium supply – even in patients with intestinal disorders or when using proton pump inhibitors. 7-Salt Magnesium is therefore particularly suitable for preventive, therapeutic and adjuvant therapeutic use over a wide range of indications.

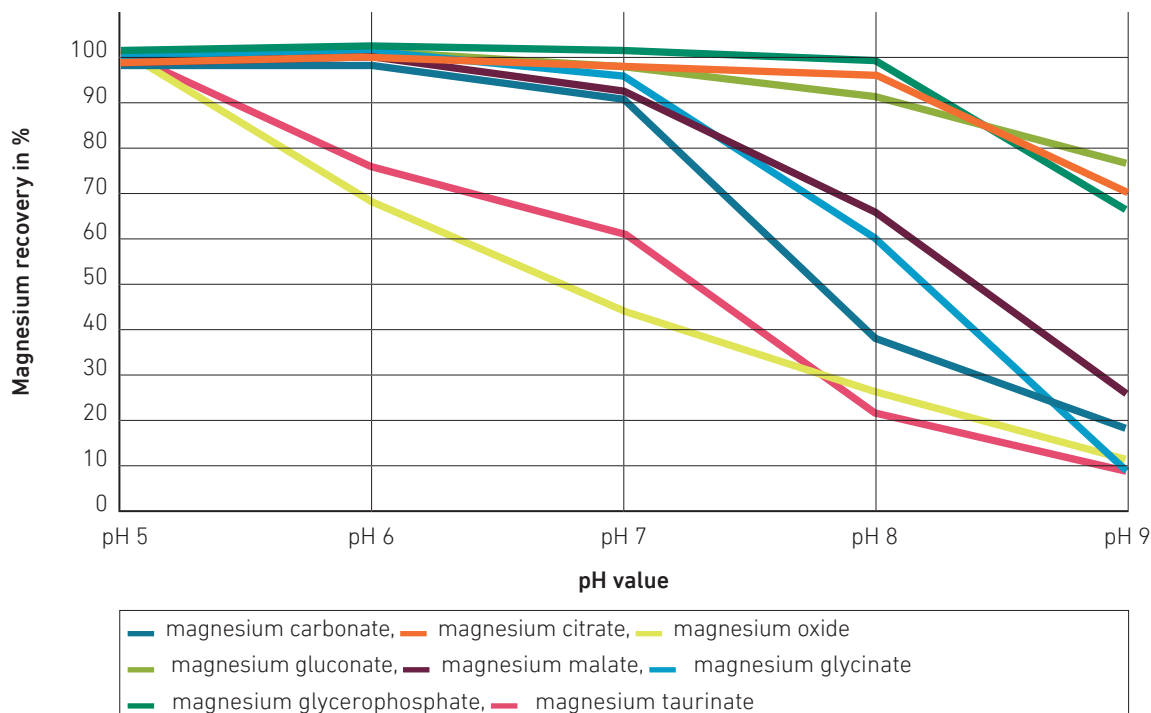
(1) Rylander, R. 2014. Bioavailability of Magnesium Salts- A Review. Journal of Pharmacy and Nutrition Sciences. 4:57-59.

(2) Kupetsky-Rincon, E. A., Uitto, J. 2012. Magnesium: Novel Applications in Cardiovascular Disease - A Review of the Literature. Ann Nutr Metab. 61:102-110.

Magnesium solubility vs. magnesium content

To develop an ideal mixture of various magnesium salts, extensive solubility tests were carried out.

Tab 1.: Solubility of various magnesium compounds related to the pH value



Laboratory tests once again underlined the **importance of the acidic stomach environment for magnesium solubility**. The tests showed that the shift of the pH value towards pH 8 to pH 9 leads to a less pronounced decrease in bioavailability for the magnesium compounds citrate, gluconate and glycerophosphate than for the other compounds. However, the presence of organic magnesium compounds can lower the pH locally, resulting in higher solubility. **Therefore, organic magnesium salts, such as magnesium citrate, are generally considered to be more bioavailable and are usually also used to treat magnesium deficiency symptoms.** However, the magnesium content of a compound should also be considered in this context: For example, magnesium oxide, which performs worst in an alkaline environment, provides 63% more magnesium ions in an acidic environment than e.g. magnesium gluconate with only 5.8%.

**These statements have not been evaluated by the Food and Drug Administration.
This product is not intended to diagnose, treat, cure or prevent any disease.