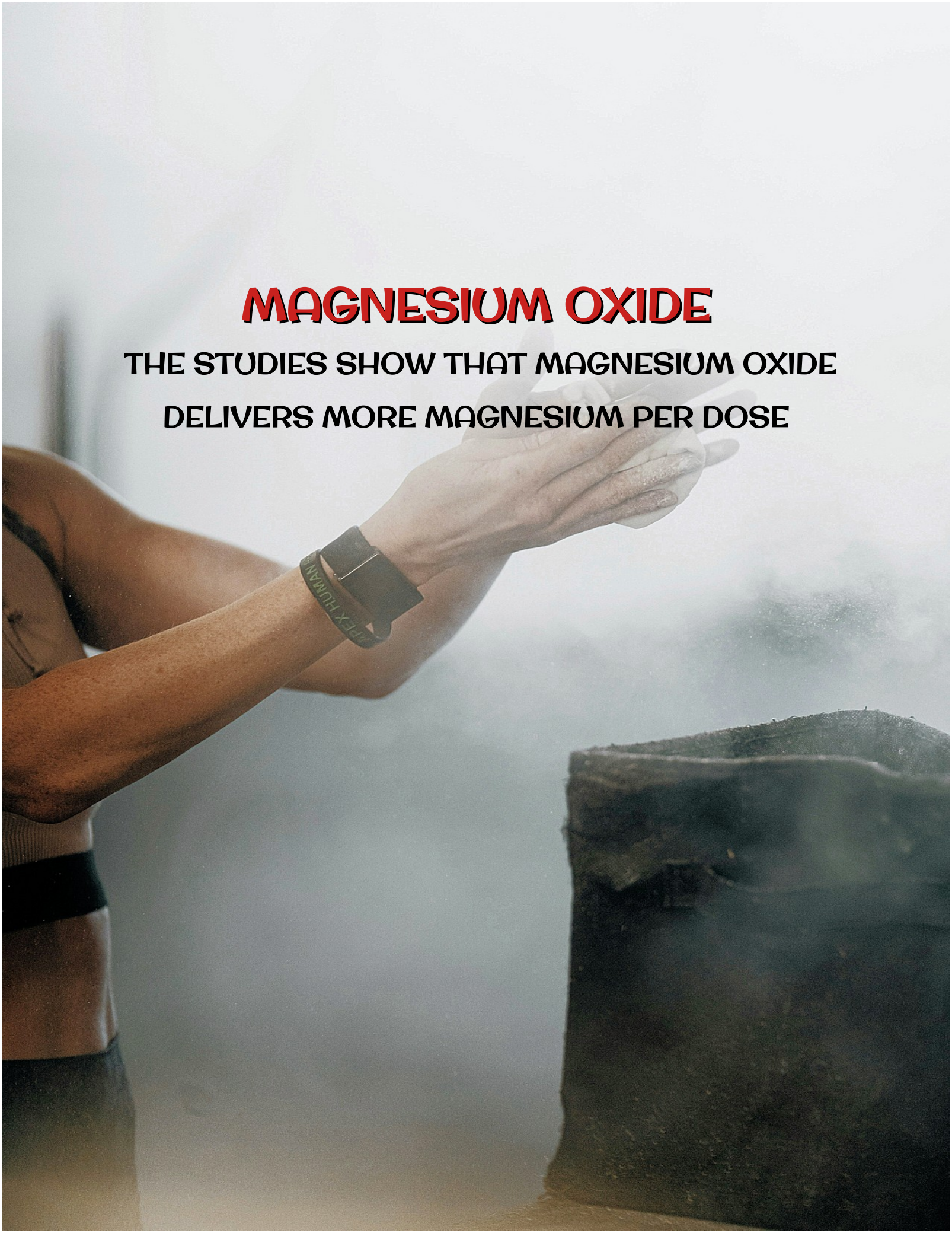
MAGNESIUM OXIDE

THE STUDIES SHOW THAT MAGNESIUM OXIDE DELIVERS MORE MAGNESIUM PER DOSE



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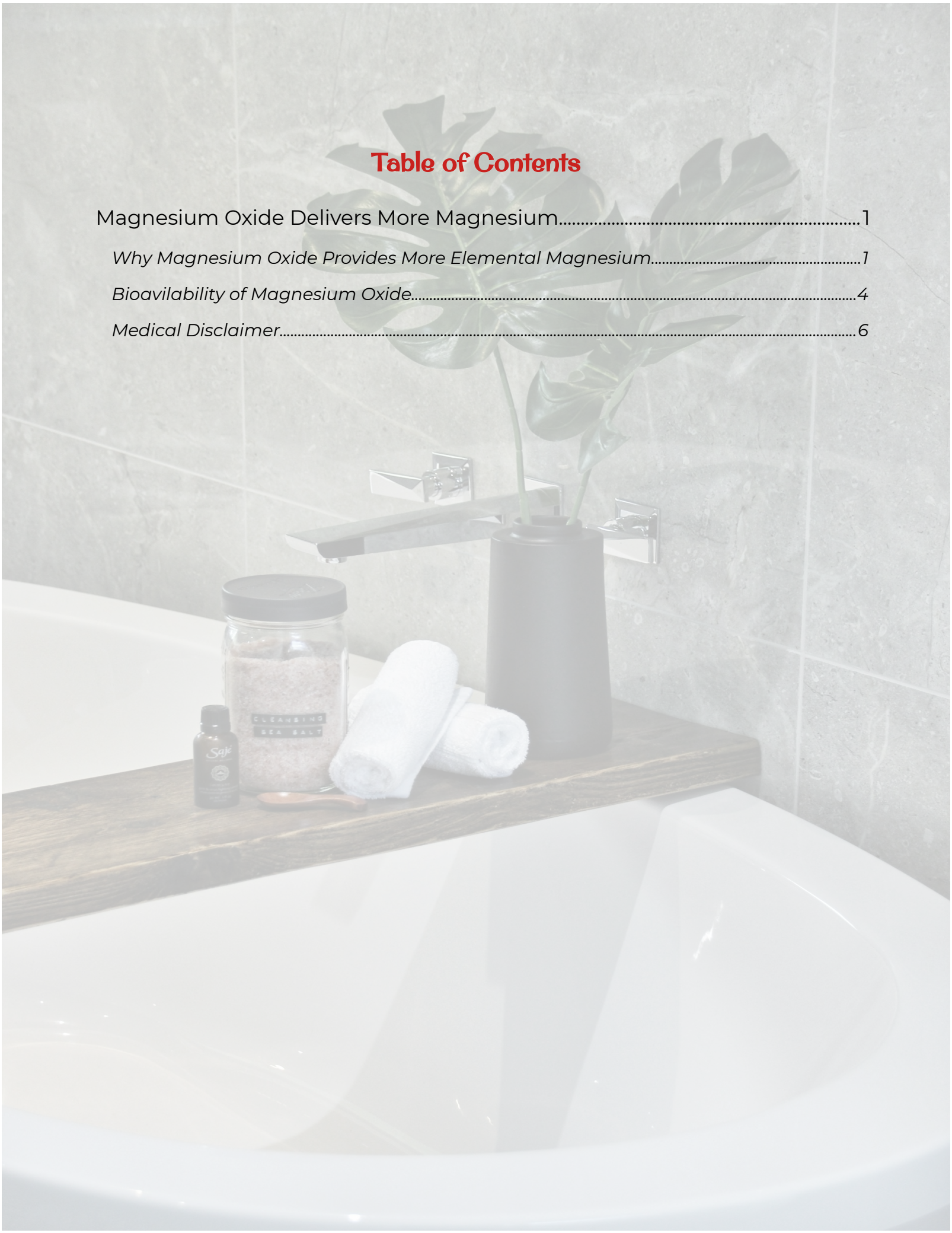

Magnesium Oxide Delivers More Magnesium

It's true that ***magnesium oxide*** is less soluble than several other forms of supplemental magnesium.

However, ***magnesium oxide*** is *at least as effective (if not better)* at restoring and maintaining a healthy level of magnesium in your cells and bones.

When you consume any magnesium salt, the magnesium must be freed from its partner compound during digestion and made soluble *(ionized)*. Once it is made soluble, your body can absorb the magnesium.

For this to happen effectively, stomach acid has to be present.

1. It's best to take your supplements with a meal because your stomach responds to your consumption of food by secreting stomach acid.
2. Medications that prevent stomach acid production impair your ability to digest and absorb minerals – and virtually all other nutrients.

Why Magnesium Oxide Provides More Elemental Magnesium

It's true that ***magnesium oxide*** is not as easy to render soluble as some other magnesium salts. It's therefore not absorbed as rapidly as other forms of magnesium, e.g. magnesium citrate, gluconate, lactate, aspartate.

But although ***magnesium oxide*** has a lower rate of absorption it contains a MUCH greater amount of actual magnesium to begin with. More than what is provided by other magnesium salts.

Even with the lower rate of absorption, ***magnesium oxide*** still delivers **more** magnesium per dose. So more magnesium gets into your bloodstream to deliver all its many benefits to your bones and body!This is illustrated in the table *Comparison of Magnesium Salts* below:

Comparison of Magnesium Salts

MG Salt	% Elemental	% Elemental MG Absorbed	Mg's of Elemental MG Absorbed per 100 mg of MG Salt
Oxide	60%	23%*	13.8
Carbonate	28%	~20% **	~5.2
Chloride	26%	20%	5.2
:-lactate	12%	42%	5
Citrate+	11%	30%	3.3
Aspertate	8%	42%	3.3
Glycina;te	14%	23%	3.2
Gluconate	6%	19%	1.14

**On the web, you'll see many sites claiming that only 4% of the magnesium in magnesium oxide is absorbed. This claim is based upon a small study by Firoz et al. (2001), which is discussed fully below. The actual data in this study shows something very different. The stated percentage of elemental magnesium absorbed from magnesium oxide in the above table — 23% — is the statistic provided in a review and meta-analysis of numerous studies by Ranade et al., (2001), cited below.*

***Magnesium carbonate is nearly insoluble, but in the presence of stomach acid (HCl), magnesium carbonate is converted into magnesium chloride, which allows 20% of elemental magnesium to be absorbed.*

As you can see, magnesium oxide contains the most elemental magnesium of 60%. And 23% of this can be absorbed.

Magnesium citrate, for example, contains only 11% elemental magnesium. And only 30% of this is absorbed.

So the percentage of elemental magnesium to begin with is just as important as the rate of absorption.

In this study, those taking ***magnesium oxide*** excreted less magnesium *on average*. So ***magnesium oxide*** was said to have a low fractional absorption rate of 4%. However, there are 2 important points not shared in this study:

1. *Half of the volunteers in this study excreted more or very comparable amounts of magnesium when taking* ***magnesium oxide*** as they did when taking the other magnesium salts.
2. Take a look for yourself at the table below ***– Urinary Magnesium, mg/day***.

The data in the following table is taken directly from *Firoz M, et al's 2001 article in Magnesium Research.* Read the full paper of any study you are going to rely upon for information.

Averaging out the data produces a result that does *not* reflect what actually happened in the participants. Yet, what was reported is repeatedly cited on the internet. This is why I *always* read the full paper of any study I am going to rely upon for information.

Most importantly, the key practical discovery made in this study was: "Magnesium excretion increased with all magnesium supplements." What this means is that all the magnesium salts tested, including ***magnesium oxide***, delivered more magnesium than was needed to meet the body's magnesium balance requirement.

Urinary Magnesium, mg/day "The Study"

All forms of magnesium salts used in animal studies have been found to effectively restore magnesium levels in magnesium-depleted animals.

In one such study in 2005, rats were first given a magnesium-depleted diet and

then provided with the same diet supplemented with 10 different magnesium salts: ***magnesium oxide*****,** chloride, sulfate, carbonate, acetate, picolate, citrate, gluconate, lactate or aspartate. The results showed that while magnesium absorption values varied from 50% to 67%, all the magnesium salts used were equally efficient in restoring magnesium levels.

The researchers also noted that "*the quantity of magnesium in the digestive tract is the major factor controlling the amount of magnesium absorbed*." And as you now know, ***magnesium oxide*** contains a far greater amount of elemental magnesium than any of the other magnesium salts .

Bioavilability of Magnesium Oxide

Higher Bioavailability Does Not Necessarily Translate to More Effective Delivery to Tissues. When a ***magnesium supplement*** is highly bioavailable, it will be rapidly absorbed from the small intestine into the bloodstream, and magnesium blood levels will quickly rise.

This sounds good, but when blood magnesium levels exceed a critical threshold, the excess is rapidly excreted by the kidneys. The end result is a shorter duration of magnesium availability to tissues. Magnesium salts with the greatest water solubility, bioavailability and rate of absorption are also more rapidly excreted in urine.

The lower parts of the small intestine are the primary sites of magnesium absorption. However, magnesium is also absorbed throughout the entire intestinal tract. Magnesium does not have special carriers that pull it into the bloodstream. Its absorption is a passive transcellular process .

For this kind of absorption process, the *quantity* of magnesium that passes through the digestive tract is the major factor controlling the amount of magnesium that is absorbed.

Because ***magnesium oxide*** contains *more* elemental magnesium *and* is less soluble, it's absorbed into the bloodstream more slowly as it passes through the digestive tract. It will not raise blood levels excessively, and will therefore not be rapidly excreted.

Medical Disclaimer

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