
Understanding Magnesium Supplements

[Updated 2025-April-3]

Magnesium is essential for the human body and research shows that most people do not get enough in their diet. This is partially because we used to get a lot from foods we eat. Animals get it from plants, but agricultural methods have depleted the soils and so there is less magnesium available for plants. Thus supplementation may be necessary.

Magnesium supplements come in various types, and they have different benefits. Read the ingredients label carefully to see what forms of magnesium are in any supplements you are considering before buying. Also, consider the amounts of the various ingredients. Some manufacturers put trace amounts in the bottle just to make a claim or don't have the best quality, so take your time to investigate. Consider the source and shop around.

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Links

I used the following in my research:

- <https://www.healthline.com/nutrition/magnesium-types>
- <https://www.drberg.com/blog/the-best-and-worse-types-of-magnesium>
- AI (see Bibliography for sources used there)

Types

The following table is a list of types identified. In the remaining text, (#) indicates a type from this table. Sorted by cost.

#	Form	Benefits	Cost per 200mg	Notes
(1)	Taurate	Weight loss, heart, BP	>\$1.00	Highly bioavailable, often more expensive due to the addition of taurine.
(2)	L-Threonate	Neoprotective	>\$1.00	Known for its ability to cross the blood-brain barrier, often more expensive due to its unique properties.
(3)	Orotate	Heart	\$0.70-\$1.50	Known for its potential cardiovascular benefits and high bioavailability.
(4)	Glycinate	Sleep	\$0.50-\$1.00	Highly bioavailable and gentle on the digestive system.
(5)	Malate	Muscle cramps & relaxation	\$0.30-\$0.80	Well-absorbed and often used for muscle and nerve support.
(6)	Citrate	Increase Mg & helps bowel/constipation	\$0.20-\$0.70	Commonly used and well-absorbed, often used for constipation.
(7)	Chloride	Increase Mg	\$0.15-\$0.60	Well-absorbed and versatile, available in various forms including topical.
(8)	Hydroxide		\$0.10-\$0.50	Effective for constipation and as an antacid; can be found in over-the-counter laxatives and antacids.
(9)	Sulfate	Epsom salt bath	\$0.10-\$0.50	Often used in Epsom salt form for topical application.
(10)	Oxide	Heartburn/migraines	\$0.05-\$0.30	Less expensive but less bioavailable, often used for constipation.
(11)	Carbonate		\$0.05-\$0.25	Less expensive and often used in antacid formulations. 4% absorption rate. 😞
(12)	Lactate	Stress	\$0.05-\$0.25	Less common but gentle on the digestive system.

Descriptions

Magnesium Citrate

Magnesium citrate is a form of magnesium that's bound with citric acid.

This acid is found naturally in [citrus fruits](#), giving them their tart, sour flavor ([3](#)).

Magnesium citrate is a more common magnesium supplement formulations and can be purchased in stores worldwide.

A study of 14 male participants suggests that this type is among the most bioavailable forms of magnesium, meaning it's more easily absorbed in your digestive tract than other forms ([4Trusted Source](#)).

It's typically taken orally to replenish low magnesium levels. Due to its natural laxative effect, it's also sometimes used at higher doses to treat constipation.

Magnesium oxide

Magnesium oxide is a salt that combines magnesium and oxygen.

It naturally forms a white, powdery substance and may be sold in powder or capsule form ([6](#)).

This type isn't typically used to prevent or treat magnesium deficiencies, as some studies report that it's poorly absorbed by your digestive tract ([7Trusted Source](#)).

Instead, people use it more frequently to relieve uncomfortable digestive symptoms, such as [heartburn](#), indigestion, and constipation. Some may also use it to treat and prevent migraine episodes, but more research is needed to confirm that magnesium deficiency can contribute to migraine attacks ([8Trusted Source](#), [9Trusted Source](#)).

Magnesium Chloride

Magnesium chloride is a magnesium salt that includes chlorine — an unstable element that binds well with other elements, including [sodium](#) and magnesium, to form salts.

It's well absorbed in your digestive tract, making it a great multi-purpose supplement. You can use it to treat low magnesium levels ([2Trusted Source](#), [7Trusted Source](#), [10](#)).

People take magnesium chloride most frequently in capsule or tablet form, but it may also be an ingredient in topical products like lotions and ointments.

Although people use these skin creams to soothe and relax sore muscles, little scientific evidence links them to improved magnesium levels ([11](#)).

Magnesium Lactate

Magnesium lactate is the salt formed when magnesium binds with lactic acid.

This acid is produced by your muscle and blood cells and is manufactured as a preservative and flavoring agent ([12](#)).

Indeed, magnesium lactate is utilized as a [food additive](#) to regulate acidity and fortify foods and beverages. It's less popular as an over-the-counter dietary supplement.

Your digestive tract easily absorbs magnesium lactate, which may also be gentler on your digestive system than other types. This may benefit people who need to take large doses of magnesium regularly or don't easily tolerate other forms.

In a study of 28 people with a rare condition that required high doses of magnesium daily, those who took a slow-release tablet of magnesium lactate reported fewer digestive side effects than the control group ([13Trusted Source](#)).

Other studies likewise reveal that this form may help treat [stress and anxiety](#), but more research is needed ([14Trusted Source](#)).

Magnesium malate

Magnesium malate includes malic acid, which occurs naturally in foods like fruit and [wine](#). This acid has a sour taste and is often added to food to add flavor or acidity.

Research suggests that magnesium malate is very well absorbed in your digestive tract, making it a great option for replenishing your magnesium levels ([15Trusted Source](#)).

Some people report that it's gentler on your system and may have a less [laxative effect](#) than other types. This may be beneficial, depending on your specific needs.

Magnesium malate is occasionally recommended to treat fibromyalgia and chronic fatigue syndrome symptoms. But while some studies have found there may be benefits, more high quality studies are needed ([16Trusted Source](#)).

Magnesium Taurate

Magnesium taurate contains the amino acid [taurine](#).

Research suggests that adequate intakes of taurine and magnesium play a role in regulating blood sugar. Thus, this form may promote [healthy blood sugar levels](#) ([17Trusted Source](#)).

Magnesium and taurine also support healthy blood pressure ([1Trusted Source](#)⁸, [19Trusted Source](#)).

A 2018 animal study revealed that magnesium taurate significantly reduced blood pressure in rats with high levels, indicating that this form may bolster heart health ([20Trusted Source](#)).

Keep in mind that more human research is needed.

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Magnesium L-threonate

Magnesium L-threonate is the salt formed from mixing magnesium and threonic acid, a water-soluble substance derived from the metabolic breakdown of [vitamin C \(21\)](#).

This form is easily absorbed. Animal research notes it may be the most effective type for increasing magnesium concentrations in brain cells ([22Trusted Source](#)).

Magnesium L-threonate is often used for its potential [brain benefits](#) and may help manage certain brain disorders, such as depression, Alzheimer's disease, and age-related memory loss. Nonetheless, more research is needed ([23Trusted Source](#)).

Magnesium sulfate

Magnesium sulfate is formed by combining magnesium, sulfur, and oxygen. It's commonly known as [Epsom salt](#). It's white with a texture similar to that of table salt.

While you can consume it as a treatment for constipation in capsule form or dissolve the powder in water, it has an unpleasant taste. Using too much or using it too often can be dangerous ([24Trusted Source](#)).

You can dissolve magnesium sulfate in bathwater to soothe sore, achy muscles and relieve stress. It's also sometimes included in skin care products like lotion or body oil.

Although adequate magnesium levels can play a role in muscle relaxation and stress relief, little evidence suggests that this form is well absorbed [through your skin \(11Trusted Source\)](#).

Magnesium glycinate

Magnesium glycinate is formed from elemental magnesium and the amino acid [glycine](#).

Your body employs this amino acid in protein construction. It also occurs in many protein-rich foods, such as:

- fish
- meat
- dairy
- legumes

Animal studies suggest that glycine on its own can help [improve sleep](#) and treat some inflammatory conditions, including heart disease and diabetes. But more robust studies are needed to further support this ([25Trusted Source](#), [26Trusted Source](#)).

Magnesium glycinate is easily absorbed and may have calming properties. It may help reduce mental health issues, such as: ([1Trusted Source](#))

- anxiety
- depression
- stress
- insomnia

Yet, there is limited scientific evidence on these uses, so more studies are needed.

Magnesium orotate

Magnesium glycinate is formed from elemental magnesium and the amino acid [glycine](#).

Your body employs this amino acid in protein construction. It also occurs in many protein-rich foods, such as:

- fish
- meat
- dairy
- legumes

Animal studies suggest that glycine on its own can help [improve sleep](#) and treat some inflammatory conditions, including heart disease and diabetes. But more robust studies are needed to further support this ([25Trusted Source](#), [26Trusted Source](#)).

Magnesium glycinate is easily absorbed and may have calming properties. It may help reduce mental health issues, such as: ([1Trusted Source](#))

- anxiety
- depression
- stress
- insomnia

Yet, there is limited scientific evidence on these uses, so more studies are needed.

Magnesium Sources

Warning! Some of these are high in carbohydrates/sugar or have other problems.

- Pumpkin seeds
- [Spinach](#)
- Avocados
- Green leafy vegetables
- Almonds
- Dark chocolate
- Dairy
- [Seaweed](#)

Brands

Some brands I have used.

- Magtech Magnesium
- SlowMag Mg
- Magtein
- LMNT Electrolyte Drink Mix
- Bulk Supplements Magnesium Malate
- Bulk Supplements Magnesium Glycinate
- Pure encapsulations Magnesium (glycinate)

Bibliography

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3. **Examine.com.** (2023). *Magnesium*. Retrieved from Examine.com
4. **Mayo Clinic.** (2023). *Magnesium (Oral Route)*. Retrieved from Mayo Clinic
5. **WebMD.** (2023). *Magnesium Hydroxide*. Retrieved from WebMD
6. **BulkSupplements.com.** (2023). *Magnesium Hydroxide Powder*. Retrieved from BulkSupplements.com

These sources provide comprehensive information on the different forms of magnesium supplements, their costs, benefits, and potential side effects.