



Magnesium Formulas

PROFESSIONAL PRODUCT GUIDE



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Magnesium 101

Magnesium formulas

GENESTRA BRANDS has one of the largest portfolios of liquid magnesium supplements available. Great-tasting, natural flavors complement the deliciously smooth mouth-feel, for enhanced patient compliance. Capsule and tablet-based magnesium supplements are also available.

Magnesium for optimal health

Magnesium is the fourth most abundant mineral in the human body and is a cofactor in over 300 metabolic reactions. A 70 kg person has approximately 20–24 g of magnesium, approximately 60% of which is stored in bones,^{1,2} where it acts as an interchangeable storage reservoir for the rest of the body. Around 35% of the body's magnesium is located in high tissues with high metabolic rates, including skeletal muscle, the brain, heart, kidneys and liver.³ Magnesium is involved in the maintenance of normal blood pressure, glucose metabolism, muscle function, and bone integrity, among several other key physiological roles.⁴

Magnesium intake

The primary dietary sources of magnesium are green vegetables, grains, nuts, soy beans and shell fish.³ However, magnesium intakes in Western countries are consistently declining,³ due in part to industrial food processing and agricultural soil depletion.¹ Daily intake has declined from approximately 410 mg in the 20th century to just 200–300 mg.⁴

The adult Dietary Reference Intake (DRI) for magnesium is 310–420 mg per day, however magnesium intakes are often well below the DRI, especially in older adults.⁵

Factors that influence magnesium and calcium requirements

Age and life stage: Net calcium absorption is as high as 60% in infants and young children (who need substantial amounts of the mineral to build bone density). Absorption decreases to 15%–20% in adulthood and continues to decrease as people age. Recommended calcium intakes are higher for females older than 50 years and for men and women older than 70 years.^{6,7}



REFERENCES

1. Seelig MS, Rosanoff A. The magnesium factor. New York: Avery, 2003.
2. Wacker WEC, Parisi AF. Magnesium metabolism. N Engl J Med 1968; 278: 658–63.
3. Schechter M. Magnesium and cardiovascular system. Magnesium Research. 2010; 23(2): 60–72
4. Volpe S. Magnesium in Disease Prevention and Overall Health. Advances in Nutrition. 2013; 3785–3835
5. Food and Nutrition Board, Institute of Medicine. (1997). Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride, Washington, DC: National Academy Press, 1997.
6. IOM (Institute of Medicine). 2011. Dietary Reference Intakes for Calcium and Vitamin D. Washington, DC: The National Academies Press.
7. NHPD Monograph on Multi-Vitamin and Mineral. October 2007.
8. Straub DA. Calcium supplementation in clinical practice: a review of forms, doses, and indications. Nutr Clin Pract. 2007; 22: 286–296.



NEW



Great tasting liquid magnesium formulas

NEW Magnesium Complex Liquid Natural Tart Berry Flavor

MINERAL SUPPLEMENT

Concentrated combination of three magnesium sources

- Helps to maintain cardiovascular health[†]
- Promotes healthy glucose metabolism[†]
- Supports muscle function[†]
- Helps to promote magnesium intake
- Delicious natural blueberry-raspberry flavor

Magnesium Complex Liquid is a concentrated combination of three magnesium sources, including magnesium glycinate, citrate and malate. Magnesium is one of the most common nutritional deficiencies: insufficient magnesium intake is estimated to occur in approximately 2/3 of the American population.¹ Magnesium plays an important role in regulating insulin-mediated glucose uptake, and low serum magnesium levels are associated with decreased insulin secretion.² In healthy non-diabetic participants with low serum magnesium levels, daily supplementation with 300 mg of magnesium has been shown to improve glucose metabolism and pancreatic β -cell function.^{3,4} Each tablespoon serving of Magnesium Complex Liquid provides 500 mg of magnesium to help maintain cardiovascular health, promote healthy glucose metabolism and support muscle function.[†]

Supplement Facts

Serving Size 1 Tablespoon (15 ml) / Servings per Container 30

Each Tablespoon Contains	%DV	
Calories	30	
Total Carbohydrate	5 g	2% ♦
Magnesium (magnesium glycinate/ citrate/malate)	500 mg	125%

♦ Percent Daily Values (DV) are based on a 2000 calorie diet

Other ingredients: Purified water, glycerin, xylitol, citric acid, DL-malic acid, natural flavor (blueberry/raspberry), xanthan gum, potassium sorbate, sodium citrate, organic stevia leaf extract (glucosylsteviosides)

Recommended Dose

Adults (19 years and older): Take one tablespoon daily or as recommended by your healthcare practitioner. **Adolescents (9-18 years):** Take ½ tablespoon daily or as recommended by your healthcare practitioner.

Size

15.2 fl oz (450 ml)

Product Code

04235



REFERENCES

1. Moshfegh A, Goldman J, and Cleveland L. What we eat in America, NHANES 2001–2002: Usual nutrient intakes from food compared to Dietary Reference Intakes. US Department of Agriculture, Agricultural Research Service. 2005: 1–56
2. Rodríguez-Morán M, Guerrero-Romero F. Insulin secretion is decreased in non-diabetic individuals with hypomagnesaemia. *Diabetes Metab Res Rev.* 2011; 27: 590–596
3. Guerrero-Romero F, Tamez-Perez HE, González-González G, Salinas-Martínez AM, Montes-Villarreal J, Treviño-Ortiz JH et al. Oral magnesium supplementation improves insulin sensitivity in non-diabetic subjects. A double-blind placebo-controlled randomized trial. *Diabetes Metab.* 2004; 30: 253–258
4. Guerrero-Romero F, Rodríguez-Morán M. Magnesium improves the beta-cell function to compensate variation of insulin sensitivity: double-blind, randomized clinical trial. *Eur J Clin Invest.* 2011; 41(4): 405–410

NEW Magnesium Glycinate Liquid Natural Apple-Pomegranate Flavor

MINERAL SUPPLEMENT

Magnesium glycinate formulation

- Helps to maintain muscle function[†]
- Helps to metabolize carbohydrates, protein and fat[†]
- Magnesium glycinate is a gentle form of magnesium that is less likely to cause loose stools^{1,2†}

Dissolves completely in water

- No cloudy residue
- Great-tasting apple-pomegranate flavor

Magnesium Glycinate Liquid contains 100% magnesium glycinate, a highly bioavailable¹ and water-soluble form of magnesium. Its high solubility means that Magnesium Glycinate Liquid dissolves instantly into water without leaving behind a cloudy residue. Magnesium helps to maintain bone health by regulating the production of parathyroid hormone (PTH) and calcitriol, which helps to increase calcium absorption and minimize risk of calcium deficiency.^{3,4} In the United States, insufficient magnesium intake is estimated to occur in approximately 64% of men and 67% of women, with even higher levels of insufficient intake in elderly individuals.⁵

Magnesium glycinate (also known as magnesium bisglycinate) is an amino acid chelate of magnesium and two glycine molecules. Evidence suggests that magnesium glycinate has a significantly higher bioavailability than magnesium oxide, and is less likely to cause a laxative effect.^{1,2} Supplementation with magnesium glycinate has been shown to decrease the severity of muscle cramping in pregnancy: in a clinical trial on 86 healthy pregnant women with recurrent muscle cramps, supplementation with 300 mg of magnesium glycinate for 4 weeks reduced both the frequency and intensity of leg cramps.^{2†}

Supplement Facts

Serving Size 1 Tablespoon (15 ml) / Servings per Container 30

Each Tablespoon Contains	%DV	
Calories	30	
Total Carbohydrate	5 g	2% ♦
Magnesium (magnesium glycinate)	250 mg	63%

♦ Percent Daily Values (DV) are based on a 2,000 calorie diet

Other ingredients: Purified water, glycerin, xylitol, DL-malic acid, concentrated apple juice, natural flavor, potassium sorbate, rebudioside A (stevia leaf extract)

Recommended Dose

Adults (19 years and older): Take one tablespoon one to two times daily or as recommended by your healthcare practitioner. **Adolescents (9-18 years):** Take one tablespoon daily or as recommended by your healthcare practitioner. If preferred, Magnesium Glycinate Liquid can be mixed with juice or water.

Size

15.2 fl oz (450 ml)

Product Code

04225



REFERENCES

1. Schuette S, Lashner B, and Janghobani M. Bioavailability of Magnesium Diglycinate vs Magnesium Oxide. *Journal of Parenteral and Enteral Nutrition.* 1994; 18: 430
2. Supakatisant C and Phupong V. Oral magnesium for relief in pregnancy-induced leg cramps: a randomised controlled trial. *Maternal and Child Nutrition.* 2012
3. Zofková I, Nemcikova P, Matucha P. Trace Elements and Bone Health. *Clinical Chemistry and Laboratory Medicine.* 2013; 51(8): 1555–1561
4. Fong J and Khan A. Hypocalcemia Updates in Diagnosis and Management for Primary Care. *Canadian Family Physician.* 2012; 58: 158–162
5. Moshfegh A, Goldman J, and Cleveland L. What we eat in America, NHANES 2001–2002: Usual nutrient intakes from food compared to Dietary Reference Intakes. US Department of Agriculture, Agricultural Research Service. 2005: 1–56

Mag Cal Formula 2

CALCIUM-MAGNESIUM SUPPLEMENT

Musculoskeletal support formula with magnesium, calcium and vitamin D

- 400 mg of magnesium, 200 mg of calcium, and 100 IU of vitamin D per daily dose
- Helps in the development and maintenance of bones and teeth[†]
- Helps to metabolize carbohydrates, proteins and fats[†]
- Helps to maintain proper muscle function[†]
- Adequate calcium and vitamin D throughout life, as part of a well-balanced diet, may reduce the risk of osteoporosis

Mag Cal Formula 2 supports muscle and bone health using a combination of magnesium, calcium and vitamin D. Each of these active ingredients plays an important role in maintaining optimal muscle function and bone mineral density. Magnesium is a cofactor for the enzyme creatine kinase, which generates ATP from phosphocreatine stored in muscle tissues during intense exercise. In a double-blind, placebo controlled clinical study conducted on 25 healthy male volleyball players with normal magnesium levels, supplementation with 350 mg of magnesium oxide for 4 weeks improved alactic anaerobic metabolism. Following supplementation, lactate production during peak exercise was significantly reduced in the magnesium group in comparison with baseline measurements. Jump height was also significantly improved in the magnesium group, in comparison with the placebo group.^{1†}

Supplement Facts

Serving Size 1 Tablet/ Servings per Container 90

Each Tablespoon Contains		%DV [†]
Vitamin D (cholecalciferol)	100 IU	25%
Calcium (calcium carbonate/ aspartate)	200 mg	20%
Magnesium (magnesium oxide/ aspartate)	400 mg	100%

[†] Daily Value (DV)

Other ingredients: Cellulose, hypromellose, silica, croscarmellose sodium, magnesium stearate, hypromellose, glycerin

Recommended Dose

Adults: Take one tablet once daily, a few hours before or after taking other medications, or as recommended by your healthcare practitioner.

Size

90 Tablets

Product Code

05205



REFERENCES

1. Setaro L et al. Magnesium status and the physical performance of volleyball players: effects of magnesium supplementation. Journal of Sports Sciences. 2014; 32(5): 438-445

Mag Cal Plus

CALCIUM-MAGNESIUM SUPPLEMENT

Magnesium and calcium plus vitamins and valerian root

- 450 mg of magnesium and 300 mg of calcium per serving
- Plus 300 IU of vitamin D, 18.75 mg of niacinamide, 7.5 mg of vitamin B₆, and 90 mg of valerian root per daily serving
- Helps to maintain proper muscle function[†]
- Helps the body to metabolize carbohydrates, fats and proteins[†]
- Helps to promote vitamin B₆ intake
- Adequate calcium and vitamin D throughout life, as part of a well-balanced diet, may reduce the risk of osteoporosis

Mag Cal Plus supports proper muscle function with a unique combination of calcium, magnesium, niacinamide, vitamins B₆ and D, as well as valerian root. Magnesium supplementation may help in the treatment and prevention of muscle cramping in pregnant women, who typically have lower serum magnesium levels. In a 4 week long, double-blinded, randomized, placebo-controlled trial including 86 healthy pregnant women with recurrent muscle cramps, daily supplementation with 300 mg of magnesium significantly reduced the frequency and intensity of leg muscle cramps. Magnesium supplementation was associated with a reduction in leg cramp frequency in 86% of participants, and approximately 70% of participants experienced a 50% reduction in leg cramp pain intensity.¹ Supplementation with niacinamide and vitamin B₆ helps to provide support for healthy carbohydrate, lipid and protein metabolism.[†]

Supplement Facts

Serving Size 1 Tablet/ Servings per Container 90

Each Tablet Contains		%DV
Vitamin D (cholecalciferol)	100 IU	25%
Niacinamide	6.25 mg	31%
Vitamin B ₆ (pyridoxine hydrochloride)	2.5 mg	125%
Calcium (calcium aspartate/ carbonate)	100 mg	10%
Magnesium (magnesium aspartate/ oxide)	150 mg	38%
Valerian (<i>Valeriana officinalis</i>) Root	30 mg	[†]

[†] Daily Value (DV) not established

Other Ingredients: Cellulose, croscarmellose sodium, magnesium stearate, silica, hypromellose, glycerin

Recommended Dose

Adults: Take one tablet three times daily with meals, a few hours before or after taking other medications, or as recommended by your healthcare practitioner.

Size

90 Tablets

Product Code

05204



REFERENCES

1. Supakatisant C and Phupong V. Oral magnesium for relief in pregnancy-induced leg cramps: a randomised controlled trial. Maternal and Child Nutrition. 2012

Mag Cal Vanilla Liquid

Natural Vanilla Flavor

CALCIUM-MAGNESIUM SUPPLEMENT

2:1 ratio of magnesium and calcium citrate minerals with added vitamin D

- 500 mg of magnesium, 250 mg of calcium, and 1000 IU of vitamin D per tablespoon
- Helps to maintain proper muscle function[†]
- Helps the body to metabolize carbohydrates, fats and proteins[†]
- Helps to promote vitamin D and magnesium intake
- Adequate calcium and vitamin D throughout life, as part of a well-balanced diet, may reduce the risk of osteoporosis
- Delicious natural vanilla flavor

Mag Cal Vanilla Liquid supports musculoskeletal health with a concentrated combination of organic magnesium and calcium citrate minerals, plus vitamin D. Magnesium supplementation supports active lifestyles by aiding in the maintenance of muscle function and promoting healthy bone mineral composition.^{1,2}

Vitamin D levels tend to be lower in overweight adults,³ and clinical trial results indicate that higher levels of vitamin D supplementation are needed to maintain normal vitamin D status in overweight individuals.⁴ In a year-long, double-blind, placebo-controlled clinical trial, 1000 IU daily of vitamin D significantly attenuated hip bone mineral loss in women aged 60-70 with mean BMI values > 25. After 1 year of supplementation, mean hip bone mineral density loss was approximately 0.05% in the vitamin D group, in comparison with an approximate loss of 0.60% in the placebo group. Serum calcium levels were also significantly increased in the vitamin D group.^{5†}

Supplement Facts

Serving Size 1 Tablespoon (15 ml)/ Servings per Container 30

Each Tablespoon Contains	%DV
Calories	15
Total Carbohydrate	4 g <1%◆
Vitamin D (cholecalciferol)	1000 IU 250%
Calcium (calcium citrate)	250 mg 25%
Magnesium (magnesium citrate)	500 mg 125%

◆ Percent Daily Values (DV) are based on a 2,000 calorie diet

Other ingredients: Purified water, xylitol, natural vanilla flavor, citric acid, xanthan gum, potassium sorbate, organic stevia leaf extract (steviol glycosides)

Recommended Dose

Adults: Take one tablespoon once daily with a meal, a few hours before or after taking other medications, or as recommended by your healthcare practitioner. Shake well before each use. Do not refrigerate.

Size

15.2 fl oz (450 ml)

Product Code

05233

DAIRY FREE GLUTEN FREE VEGETARIAN

REFERENCES

1. Veronese N, Berton L, Carraro S, Bolzetta F, De Rui M, Perissinotto E, Tofanello ED. Effect of oral magnesium supplementation on physical performance in healthy elderly women involved in a weekly exercise program: a randomized controlled trial. *The American Journal of Clinical Nutrition*. 2014; 100: 974-81
2. Carpenter TO, DeLucia M, Zhang JH, Bejnerowicz G, Tartamella L, Dziura J et al. A Randomized Controlled Study of Effects of Dietary Magnesium Oxide Supplementation on Bone Mineral Content in Healthy Girls. *J Clin Endocrinol Metab*. 2006 91(12): 4866-4872
3. Salehpour A, Hossainpanah F, Shidfar F, Vafa M, Razaghi M, Dehgani S et al. *Nutrition Journal*. 2012; 11: 78
4. Blum M, Dallal GE, Dawson-Hughes B. Body size and serum 25 hydroxy vitamin D response to oral supplements in healthy older adults. *J AM Coll Nutr*. 2008; 27(2): 274-279
5. Macdonald HM, Wood AD, Aucott LS, Black AJ, Fraser WD, Mavroieidi A et al. *Journal of Bone and Mineral Research*. 2013; 28(10): 2202-2213



[†] These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure or prevent any disease.

Magnesium

MINERAL SUPPLEMENT

Magnesium in a convenient vegetable capsule format

- 400 mg of magnesium per daily serving
- Helps the body to metabolize carbohydrates, fats and proteins[†]
- Helps in the maintenance of bones and teeth[†]
- Helps in tissue formation and in the maintenance of muscle function[†]

Each Magnesium capsule provides 100 mg of magnesium to help support macronutrient metabolism, bone health, and muscle function. Magnesium plays an essential role in both muscle contraction and relaxation, and may help in the maintenance of muscle function in physically active older individuals. Older adults, especially women, tend to have lower magnesium dietary intake and absorption rates.^{1,2} In the first clinical trial to assess magnesium's impact on muscle performance in the elderly, daily supplementation with magnesium for 12 weeks significantly improved physical performance. One hundred and thirty nine healthy, physically active women aged 65+ were randomized to receive either placebo or 300 mg of elemental magnesium from magnesium oxide. Following supplementation, participants in the magnesium group had significant improvements in walking speed, with an average increase of 39 feet per minute. Chair stand test scores were also significantly improved, indicating enhanced lower limb strength and balance.^{3†}

Supplement Facts

Serving Size 1 Capsule/ Servings per Container 90

Each Capsule Contains		%DV [†]
Magnesium (magnesium aspartate/oxide)	100 mg	25%

[†] Daily Value (DV)

Other ingredients: Hypromellose, cellulose, magnesium stearate, silica

Recommended Dose

Adults (19 years and older): Take one capsule four times daily or as recommended by your healthcare practitioner. **Adolescents (9-18 years):** Take one capsule three times daily or as recommended by your healthcare practitioner. **Children (6-8 years):** Take one capsule daily or as recommended by your healthcare practitioner.

Size

90 Vegetable Capsules



REFERENCES

1. Barbagallo M, Belvedere M, Dominguez LJ. Magnesium homeostasis and aging. *Magn Res* 2009;22: 235-246
2. Rude RK, Singer FR, Gruber HE. Skeletal and hormonal effects of magnesium deficiency. *J Am Coll Nutr* 2009;28:131-41.
3. Veronese N, Berton L, Carraro S, Bolzetta F, De Rui M, Perissinotto E, Tofanello ED. Effect of oral magnesium supplementation on physical performance in healthy elderly women involved in a weekly exercise program: a randomized controlled trial. *The American Journal of Clinical Nutrition*. 2014; 100: 974-81

Product Code

04216



Cal Mag Liquid

Natural Mint Flavor

CALCIUM-MAGNESIUM SUPPLEMENT

Delicious mint-flavored liquid calcium/magnesium supplement

- Provides 600 mg of calcium and 300 mg of magnesium per tablespoon serving
- With 100 IU of vitamin D
- Helps in the development and maintenance of bones and teeth[†]
- Helps to maintain proper muscle function and helps in tissue formation[†]
- Adequate calcium and vitamin D throughout life, as part of a well-balanced diet, may reduce the risk of osteoporosis

Cal Mag Liquid combines calcium, magnesium and vitamin D to help support optimal bone mineral composition and muscle health. Calcium and vitamin D's roles in bone health are well-documented; however magnesium also supports several key components of bone maintenance. *In vitro* and animal study results indicate that magnesium promotes bone mineralization by enhancing osteoblast activity while reducing osteoclast activity. In individuals with low magnesium status, magnesium intake enhances bone mineralization during skeletal development, which may support bone mineral density in later years.¹ In a double-blind, placebo-controlled trial, daily magnesium supplementation for 1 year significantly improved hip bone mineral content in healthy adolescent girls with insufficient dietary magnesium intake. Participants were randomized to receive either placebo treatment or 300 mg of magnesium from magnesium oxide. At the end of the supplementation period, mean hip bone mineral content was approximately 3% greater in the magnesium group in comparison with the placebo group.^{2†}

Supplement Facts

Serving Size 1 Tablespoon (15ml)/ Servings per Container 24

Each Tablespoon Contains		%DV
Calories	5	
Total Carbohydrate	<1 g	<1% ♦
Vitamin D (cholecalciferol)	100 IU	25%
Calcium (calcium carbonate)	600 mg	60%
Magnesium (magnesium hydroxide)	300 mg	75%

♦ Percent Daily Values (DV) are based on a 2,000 calorie diet

Other Ingredients: Purified water, glycerin, xanthan gum, rebudioside A (stevia), natural mint flavor

Recommended Dose

Adults and Adolescents (9 years and older): Take one tablespoon daily with a meal, a few hours before or after taking other medication, or as recommended by your healthcare practitioner. Shake well before each use.

Size

12.2 fl oz (360 ml)
33.8 fl oz (1000 ml)



Product Code

05202
05202960

REFERENCES

1. Castiglioni S, Gazzaniga A, Albisetti W, Maier JAM. *Nutrients*. 2013; 5: 3022-3033
2. Carpenter TO, DeLucia M, Zhang JH, Beijerowicz G, Tartamella L, Dziura J et al. A Randomized Controlled Study of Effects of Dietary Magnesium Oxide Supplementation on Bone Mineral Content in Healthy Girls. *J Clin Endocrinol Metab*. 2006 91(12): 4866-4872

Cal Mag Raspberry Liquid

CALCIUM-MAGNESIUM SUPPLEMENT

Calcium and magnesium citrate formula with vitamin D

- 500 mg of calcium, 200 mg of magnesium and 1000 IU of vitamin D per tablespoon
- Helps in the development and maintenance of bones and teeth[†]
- Helps in tissue formation and in maintaining proper muscle function[†]
- Helps to promote vitamin D intake
- Adequate calcium and vitamin D throughout life, as part of a well-balanced diet, may reduce the risk of osteoporosis

High bioavailability formula

- Calcium and magnesium are delivered in citrate form, providing superior bioavailability^{1,2}

Great-tasting natural raspberry flavored liquid format

- Ideal for vegetarians

Cal Mag Raspberry Liquid supports bone health with a combination of calcium, magnesium and vitamin D. Calcium citrate significantly better absorbed in postmenopausal women than calcium oxide.¹ Magnesium citrate is a highly bioavailable form of magnesium² that helps to maintain bone mineral density: in healthy young men, regular magnesium supplementation has been shown to suppress bone turnover rates.³

The National Osteoporosis Foundation recommends calcium intakes of at least 1200 mg per day, and vitamin D intakes of 800-1,000 IU per day, with the inclusion of supplements if needed in those 50 years of age or older.⁴ Vitamin D intakes of 800 IU/day are associated with improved maintenance of bone mineral composition in comparison with 400 IU/day.^{5†}

Supplement Facts

Serving Size 1 Tablespoon (15ml)/ Servings per Container 30

Each Tablespoon Contains		%DV [†]
Vitamin D (cholecalciferol)	1000 IU	250%
Calcium (calcium citrate)	500 mg	50%
Magnesium (magnesium citrate)	200 mg	50%

[†] Daily Value (DV)

Other Ingredients: Purified water, xylitol, natural raspberry flavor, citric acid, xanthan gum, stevia leaf extract (glucosylsteviosides), potassium sorbate

Recommended Dose

Adults: Take one tablespoon daily with a meal, a few hours before or after taking other medication, or as recommended by your healthcare practitioner. Shake well before each use. Do not refrigerate.

Size

15.2 fl oz (450 ml)

Product Code

05227

DAIRY FREE GLUTEN FREE.ve VEGETARIAN

REFERENCES

1. Heller HJ, Greer LG, Haynes SD, Poindexter JR, Pak CY. Pharmacokinetic and pharmacodynamic comparison of two calcium supplements in postmenopausal women. *J Clin Pharmacol.* 2000 Nov;40(11):1237-44.
2. Walker AF, Marakis G, Christie S, Byng M. Mg citrate found more bioavailable than other Mg preparations in a randomised, double-blind study. *Magnes Res.* 2003; Sep;16(3): 183-91
3. Dimai HP, Porta S, Wirmsberger G, Lindschinger M, Pamperl I, Dobnig H, Wilders-Truschig M, Lau KH. Daily oral magnesium supplementation suppresses bone turnover in young adult males. *J Clin Endocrinol Metab.* 1998; Aug;83(8): 2742-8
4. National Osteoporosis Foundation. *Clinician's Guide to Prevention and Treatment of Osteoporosis.* Washington, DC: National Osteoporosis Foundation; 2010
5. Bischoff-Ferrari H, Willett WC, Wong JB, Giovannucci E, Dietrich T, Dawson-Hughes B. Fracture prevention with vitamin D supplementation a meta-analysis of randomized controlled trials. *JAMA.* 2005; 293: 2257-64

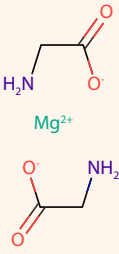
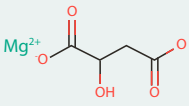
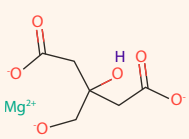
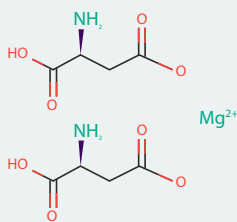




One tablespoon equals up to 8 tablets

=



Magnesium source comparison chart

Magnesium Salt	% Magnesium	Additional Information
Magnesium Glycinate 	~ 10%	<ul style="list-style-type: none"> Improved water solubility and bioavailability compared to magnesium oxide¹⁻⁴ Absorbed intact through small intestine cells¹ Highest magnesium yield possible for an amino acid chelate Glycine is a conditionally essential amino acid^{5,6} Less likely to cause loose stools^{1,2,7,8} compared to magnesium oxide and magnesium citrate¹ May help relieve pregnancy-related leg cramps^{2†}
Magnesium Malate 	~ 11%	<ul style="list-style-type: none"> Malate is a key component in the citric acid cycle, which is used to generate ATP within cells¹ More water soluble than magnesium oxide
Magnesium Citrate 	~11%	<ul style="list-style-type: none"> Greater water solubility and bioavailability than magnesium oxide³ Acts as an osmotic laxative:⁸ ideal for those with occasional constipation¹
Magnesium Aspartate (EP) 	~7%	<ul style="list-style-type: none"> Better absorbed than magnesium oxide⁹ Soluble in water Helps to support healthy glucose metabolism^{10†}
Magnesium Oxide (USP) 	~ 58%	<ul style="list-style-type: none"> Practically insoluble in water¹ Substantially decreased bioavailability compared to certain magnesium forms Strong laxative effect,⁷ commonly used in milk of magnesia products¹
Magnesium Hydroxide (USP) 	~ 40%	<ul style="list-style-type: none"> One of the most commonly used forms of magnesium in supplements

USP – U.S. Pharmacopeial Convention Reference Standard.
 EP – European Pharmacopeia Standard.

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- Schuetz S, Lashner B, and Janghobani M. Bioavailability of Magnesium Diglycinate vs Magnesium Oxide in Patients with Ileal Resection. *Journal of Parenteral and Enteral Nutrition*. 1994; 18: 430
- Supakatsant C and Phupong V. Oral magnesium for relief in pregnancy-induced leg cramps: a randomised controlled trial. *Maternal and Child Nutrition*. 2012
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- Magnesium-L-aspartate-HCl and magnesium-oxide: bioavailability in healthy volunteers. Muhlbauer, B., et al. 4, 1991, *European Journal of Clinical Pharmacology*, Vol. 40, pp. 437-438
- Oral magnesium supplementation reduces insulin resistance in non-diabetic subjects - a double-blind, placebo-controlled, randomized trial. Mooren, F.C., et al. 3, March 2011, *Diabetes, Obesity and Metabolism*, Vol. 13, pp. 281-284

Product Name	Format	Magnesium Source(s)	Magnesium / Dose	Stock Code
NEW Magnesium Complex Liquid	Liquid	Magnesium glycinate/ citrate/ malate	500 mg / tablespoon	10235
Mag Cal Vanilla Liquid	Liquid	Magnesium citrate	500 mg / tablespoon	05233
Cal Mag Liquid (mint)	Liquid	Magnesium hydroxide	300 mg / tablespoon	05202 05202960
NEW Magnesium Glycinate Liquid	Liquid	Magnesium glycinate	250 mg / tablespoon	04225
Cal Mag Raspberry Liquid	Liquid	Magnesium citrate	200 mg / tablespoon	05227
Cal Mag Vanilla Liquid +	Liquid	Magnesium citrate	200 mg / tablespoon	05230
Magnesium	Capsule	Magnesium aspartate/ oxide	100 mg / capsule	04216
Super Cal Mag	Capsule	Magnesium aspartate/ oxide	75 mg / capsule	05212 05212180
Mag Cal Formula 2	Tablet	Magnesium oxide/ aspartate	400 mg / tablet	05205
Multi Cal Mag	Tablet	Magnesium aspartate/ oxide	150 mg / tablet	05203
Mag Cal Plus	Tablet	Magnesium aspartate/ oxide	150 mg / tablet	05204
Cal Mag + D	Tablet	Magnesium aspartate / oxide	85 mg / tablet	05201

[†] These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure or prevent any disease.

Magnesium's physiological effects

Magnesium plays an important role in maintaining the function of numerous physiological systems. Vitamin D and calcium provide additional support for bone and muscle health.



Magnesium

- ↑ Nitric oxide release
 - Helps to maintain blood pressure levels already within the normal range



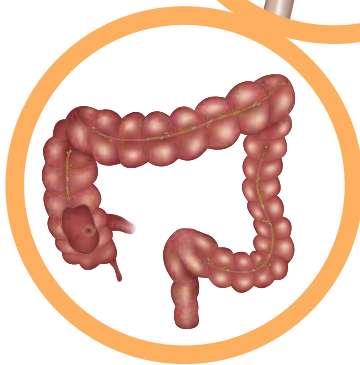
Magnesium & Vitamin D

- ↑ Muscle output



Calcium, Magnesium & Vitamin D

- ↑ Bone mineral density
- ↓ Osteoclast activity



Vitamin D

- ↑ Calcium absorption



GENESTRA BRANDS

Support for an Active Lifestyle

NEW



*Delicious natural
blueberry-raspberry flavor*

Magnesium helps to maintain cardiovascular health, glucose metabolism and muscle function, but an estimated two-thirds of Americans aren't obtaining enough magnesium from their diet.

GENESTRA BRANDS Magnesium Complex Liquid is a concentrated combination of three water-soluble magnesium sources; magnesium glycinate, citrate and malate. Each tablespoon serving includes **500 mg of magnesium** to help promote magnesium intake and to provide support for an active lifestyle.*

SUPPLEMENT FACTS

Serving Size 1 Tablespoon (15 ml)/ Servings per Container 30

Each Tablespoon Contains	% DV	
Calories	30	
Total Carbohydrate	5 g	2% ♦
Magnesium (magnesium glycinate/ citrate/malate)	500 mg	125%

♦ Percent Daily Values (DV) are based on a 2,000 calorie diet

Other ingredients: Purified water, glycerin, xylitol, citric acid, DL-malic acid, natural flavor (blueberry/raspberry), xanthan gum, potassium sorbate, sodium citrate, organic stevia leaf extract (glucosylsteviosides)

Recommended Dose: Adults (19 years and older): Take one tablespoon daily or as recommended by your healthcare practitioner. Adolescents (9-18 years): Take ½ tablespoon daily or as recommended by your healthcare practitioner.

Product Size: 15.2 fl oz (450 ml)

Product Code: 04235

GLUTEN FREE

VEGAN

DAIRY FREE

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

Cal Mag Vanilla Liquid + Natural Vanilla Flavor

CALCIUM-MAGNESIUM SUPPLEMENT

Citrate formula with vitamins D and K

- 500 mg of calcium and 200 mg of magnesium per tablespoon serving
- With 1000 IU of vitamin D, 40 mcg of vitamin K₁ and 60 mcg of vitamin K₂
- Helps in the maintenance of bones, teeth, and proper muscle function†
- Helps to prevent vitamin D deficiency
- Adequate calcium and vitamin D throughout life, as part of a well-balanced diet, may reduce the risk of osteoporosis
- Great-tasting natural vanilla flavor

Cal Mag Vanilla Liquid + helps to maintain bone health and muscle function using a combination of calcium and magnesium citrate minerals, plus vitamins D and K. Regular physical activity helps to maintain bone mass during aging, as bone metabolism is stimulated by the mechanical stress generated from impacts.¹⁻⁴ However, supplementation with calcium and vitamin D may support bone formation even when incorporated into a low-impact physical exercise program. In a randomized clinical trial, 64 healthy postmenopausal women received 500 mg of calcium and 1000 IU of vitamin D daily while undergoing 6 months of low-impact aquatic exercise. At the end of the study period, there was a 15.8% increase in bone formation biomarker P1NP (procollagen type 1 amino-terminal propeptide) compared to baseline measurements.⁵ P1NP has been identified as a relevant biomarker for the evaluation of bone health by the Bone Marker Standards Working Group.^{6†}



Supplement Facts

Serving Size 1 Tablespoon (15ml)/ Servings per Container 30

Each Tablespoon Contains		%DV
Calories	15	
Total Carbohydrate	4 g	1%◆
Vitamin D (cholecalciferol)	1 000 IU	250%
Vitamin K ₁ (phylloquinone)	40 mcg	50%
Vitamin K ₂ (menaquinone-7)▲	60 mcg	75%
Calcium (calcium citrate)	500 mg	50%
Magnesium (magnesium citrate)	200 mg	50%

◆ Percent Daily Values (DV) are based on a 2000 calorie diet

▲ Naturally derived from fermented soybeans

Other Ingredients: Purified water, xylitol, natural vanilla flavor, citric acid, xanthan gum, potassium sorbate, stevia leaf extract (glucosylsteviosides)

Recommended Dose

Adults: One tablespoon taken once daily with a meal, a few hours before or after taking other medication, or as recommended by your healthcare practitioner. Shake well before each use. Do not refrigerate.

Size

15.2 fl oz (450 ml)

Product Code

05230



REFERENCES

1. Yamazaki S, Ichimura S, Iwamoto J, Takeda T, Toyama Y. J Bone Miner Metab. 2004; 22: 500–508
2. Chien MY, Wu YT, Hsu AT, Yang RS, Lai JS. Efficacy of a 24-week aerobic exercise program for postmenopausal women. Calcif Tissue Int. 2000; 67: 443–448
3. Bemben DA, Bemben MG. Dose-response effect of 40 weeks of resistance training on bone mineral density in older adults. Osteoporos Int. 2011; 22: 179–186
4. Vainionpää A, Korpelainen R, Leppäluoto J, Jämsä T. Effects of high-impact exercise on bone mineral density: a randomized controlled trial in premenopausal women. Osteoporos Int. 2005; 16: 191–198
5. Moreira LDF, Fronza FCAO, dos Santos RN, Zach PL, Kunii IS, Hayashi LF et al. The benefits of a high-intensity aquatic exercise program (HydrOS) for bone metabolism and bone mass of postmenopausal women. J Bone Miner Metab. 2014; 32: 411–419
6. Wheatzer G, Elshahaly M, Tuck SP, Datta H, Van Laar JM. Journal of Translational Medicine. 2013, 11: 201

Cal Mag + D

CALCIUM-MAGNESIUM SUPPLEMENT

Bone support formula with a 2:1 ratio of calcium to magnesium

- Provides 680 mg of calcium and 340 mg of magnesium per daily serving
- Plus 280 IU of vitamin D
- Helps in the development and maintenance of bones and teeth[†]
- Helps in the absorption and use of calcium[†]
- Adequate calcium and vitamin D throughout life, as part of a well-balanced diet, may reduce the risk of osteoporosis

Cal Mag + D provides calcium and magnesium to support bone health, with added vitamin D to improve calcium absorption and utilization. In a dietary analysis of 502 adults aged 50+, it was estimated that supplementation with 500 mg of calcium per day would allow the majority of participants to meet the recommended daily intake of 1000 mg of calcium.¹

However, as nearly 90% of skeletal mass is accumulated by age 18, childhood and adolescence are also critical periods for developing and maintaining peak bone mineral density. In a recent cohort study of 195 physically active schoolchildren, serum vitamin D levels were found to be a major determinant of overall bone mineral density, with an even greater impact on bone mineralization than physical activity. In addition, higher vitamin D status was associated with lower levels of parathyroid hormone (PTH), indicating decreased bone turnover rates.^{2†}

Supplement Facts

Serving Size 2 Tablets/ Servings per Container 45

Each Tablet Contains	%DV [†]	
Vitamin D (cholecalciferol)	140 IU	35%
Calcium (calcium carbonate/aspartate)	340 mg	34%
Magnesium (magnesium aspartate/oxide)	170 mg	43%

[†] Daily Value (DV)

Other ingredients: Cellulose, croscarmellose sodium, magnesium stearate, hypromellose, glycerin

Recommended Dose

Adults and Adolescents (12 years and older): Take two tablets two times daily with meals, a few hours before or after taking medications, or as recommended by your healthcare practitioner.

Size

90 Tablets



Product Code

05201

REFERENCES

1. Van den Bergh JJPW, Bidar SS, Bours S, Van Geel TACM, Geusens PPM. Need of Calcium and Vitamin D in Patients after a Recent Fracture. Food and Nutrition Sciences. 2012; 3, 539-547
2. Pekkinen M, Viljakainen H, Saarnio E, Lamberg-Allardt C, Mäkitie O. Vitamin D Is a Major Determinant of Bone Mineral Density at School Age. PLoS One. 2012; 7(7): e40090

Multi Cal Mag

CALCIUM-MAGNESIUM SUPPLEMENT

Calcium and magnesium supplement with added vitamins and minerals

- 150 mg each of calcium and magnesium per tablet
- An excellent source of vitamins B₆ and D
- Provides a source of 4 essential trace minerals
- Helps to maintain bone health and muscle function[†]

Multi Cal Mag helps to support bone health and muscle function with a combination of three calcium sources (calcium carbonate, bovine bone meal, and dibasic calcium phosphate dihydrate), plus magnesium and 100 IU of vitamin D. Multi Cal Mag also provides a source of four essential trace minerals, including zinc, copper, manganese and molybdenum, and is an excellent source of vitamin B₆.[†]

Supplement Facts

Serving Size 1 Tablet/ Servings per Container 90

Each Tablet Contains	%DV	
Vitamin D (cholecalciferol)	100 IU	25%
Vitamin B ₆ (pyridoxine hydrochloride)	0.5 mg	25%
Calcium (calcium carbonate/bovine bone meal/ dibasic calcium phosphate dihydrate)	150 mg	15%
Phosphorus (bovine bone meal/ dibasic calcium phosphate dihydrate)	37.5 mg	4%
Magnesium (magnesium aspartate/ oxide)	150 mg	38%
Zinc (zinc aspartate)	1 mg	7%
Copper (copper HVP ▲ chelate)	1250 mcg	63%
Manganese (manganese citrate)	0.5 mg	25%
Molybdenum (molybdenum glycinate chelate)	12.5 mcg	17%
Vanadium (vanadyl sulfate)	6.25 mcg	[†]

[†] Daily Value not established

▲ Hydrolyzed vegetable (rice) protein

Other Ingredients: cellulose, magnesium stearate, croscarmellose sodium, silica, hypromellose, glycerin

Contains: Egg

recommended Dose

Adults (19 years and older): Take one tablet daily with a meal, a few hours before or after taking other medications, or as recommended by your healthcare practitioner.

Size

90 Tablets



Product Code

05203

REFERENCES

- 1-10. NHPD Monograph on Multi-Vitamin and Mineral. October 2007.

Super Cal Mag

CALCIUM-MAGNESIUM SUPPLEMENT

Calcium and magnesium bone support formula

- 150 mg of calcium and 75 mg of magnesium per capsule
- Plus 75 IU of vitamin D, 25 mcg of vanadium and 15 mcg of molybdenum
- Helps in the maintenance of bones and teeth[†]

Super Cal Mag supports bone health with a mixture of calcium sources, magnesium, vitamin D, and trace minerals. In healthy participants, a calcium carbonate supplement was found to have an equivalent bioavailability to calcium from skim milk or fortified orange juice.¹ Vitamin D provides additional bone health support by enhancing intestinal calcium absorption. Vanadium's impact on bone health is an emerging research area, although preliminary *in vitro* and animal studies indicate that it may play a key role in bone formation. Vanadium is highly concentrated in bone tissue, due in part to its ability to substitute for phosphate in the bone mineral hydroxyapatite. Cell tissue studies demonstrate that vanadium stimulates collagen synthesis in osteoblasts, which may support collagen levels in the extracellular matrix of bone tissue.^{2†}

Supplement Facts

Serving Size 1 Capsule Servings per Container 90

Each Capsule Contains		%DV
Vitamin D (cholecalciferol)	75 IU	19%
Calcium (bovine bone meal/ dibasic calcium phosphate dihydrate/ calcium carbonate)	150 mg	15%
Phosphorus (bovine bone meal/ dibasic calcium phosphate dihydrate)	75 mg	8%
Magnesium (magnesium aspartate/ oxide)	75 mg	19%
Manganese (manganese citrate)	5 mg	250%
Molybdenum (molybdenum Krebs ▲ complex)	15 mcg	20%
Vanadium (vanadyl sulfate)	25 mcg	[†]

[†] Daily Value (DV) not established

◆ Citrate/ fumarate/ malate/ succinate/ glutarate

Other Ingredients: Hypromellose, cellulose, magnesium stearate, silica

Contains: Egg

Recommended Dose

Adult: Take one capsule daily with a meal, a few hours before or after taking other medications, or as recommended by your healthcare practitioner.

Size

90 Vegetable Capsules

180 Vegetable Capsules

Product Code

05212

05212180

DAIRY FREE  GLUTEN FREE 

REFERENCES

1. Martini L and Wood RJ. Relative bioavailability of calcium-rich dietary sources in the elderly. *Am J Clin Nutr*. 2002; 76: 1345-1350

2. Barrio DA and Etcheverry SB. Vanadium and bone development: putative signaling pathways. *Canadian Journal of Physiology and Pharmacology*. 2006; 84: 677-686







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