



Available in 120 capsules

Discussion

A sufficient intake of minerals is important for the production of energy; the synthesis of blood, bone, and hormones; the immune system; enzyme function; and reproduction. Furthermore, balance—or the ratio of one mineral to another—is key to mineral utilization.*

Bioavailability is perhaps the most important consideration when selecting a formula containing minerals. The body transports minerals across the intestinal wall by bonding (or chelating) them to amino acids. To increase bioavailability of supplementary minerals, special processing is needed to create a stable bond between the minerals and the amino acids. Albion Laboratories uses patented processes to assure bond stability.^[1] The result, it has been demonstrated, is that the bioavailability of Albion's chelates is superior.^[2] Some other products on the market, which are purported to be chelates, are merely mixtures of proteins and minerals that lose stability during digestion and consequently have lower bioavailability.*

Many of the minerals in MinRex are bound to dipeptides. This combination appears to improve absorption by enhancing the minerals' transport across the intestinal wall.^[1] Three very important features of the chelated minerals in MinRex assist in absorption: (1) the absence of an electrical charge, which renders them less likely to interact with other dietary substances such as phytates, other vitamins and minerals, or medications; (2) small molecular weights that facilitate transport across the intestinal mucosa; and (3) the chelates remain intact and stable throughout the ranges of pH in the digestive tract.*

The minerals in MinRex differ from those in many formulas in that they are bound to the ligand, glycine. Unlike the ligand picolinic acid, which gets excreted unchanged in the urine, the amino acid glycine has nutritional value. This means that 100% of the mineral/amino acid compound has nutrient value.*^[3]

Another reason why MinRex stands apart from other mineral formulas on the market is because it contains malic acid, lithium, and

Clinical Applications

- » Supports Mineral Repletion*
- » Supports the Consumption of a Mineral-Rich Diet*
- » Supports Sports Nutrition*

*MinRex[®], XYMOGEN's highly absorbable and balanced multi-mineral formula, is composed exclusively of Albion[®]'s patented and fully reacted mineral amino acid chelates, malates, and mineral complexes.**

vanadium. Malic acid participates in the energy production cycle. A double-blind, placebo-controlled, cross-over pilot study using 400 mgs of malic acid three times a day (approximately the same amount as in MinRex) along with magnesium supported feelings of wellness in subjects' joints, muscles, tendons, and other soft tissues.^[4] Swedish researchers noted that a reduced content of high-energy phosphates in the muscles of some patients could be contributing to the muscle energy deficits experienced by these patients.^[5] Because of malic acid's role in energy production, NADH (which yields three ATPs) is formed and may therefore support muscle energy production. Malic acid is also thought to increase energy levels in healthy humans.*

Lithium and vanadium are known as ultra-trace elements. As yet, neither a requirement for ultra-trace elements, nor deficiency symptoms have been demonstrated in humans. Animal research suggests vanadium has important interactions with magnesium.^[6] It also appears to have positive effects on insulin and glucose metabolism.^[7] Lithium is thought to help regulate the neurotransmitter glutamate by keeping the amount of glutamate between brain cells at a stable, healthy level.^[8] Lithium doses somewhat higher than those in this formula are used by some practitioners to support healthy brain function. These ultra-trace minerals, as well as some of the others, could have very narrow margins between what are useful and what are toxic doses. According to Jeppsen et al, in their presentation at the 6th International Symposium on Chelating Agents in Pharmacology, Toxicology and Therapeutics, Albion amino acid chelates are less irritating than other forms of inorganic mineral supplements.*^[9]

Strenuous exercise is thought to increase mineral loss via urine, sweat, and metabolic demand. In addition to electrolytes, the minerals copper, iron, and especially magnesium and zinc appear to be prominent minerals that are impacted by exercise or have important roles in performance.^[10-12] Mineral supplements may therefore be beneficial for people who engage in strenuous exercise or physically demanding sports.*

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MinRex® Supplement Facts

Serving Size: 2 Capsules

	Amount Per Serving	%Daily Value
Calcium (dicalcium malate and calcium bisglycinate chelate) ^{S1}	150 mg	12%
Iodine (as potassium iodide)	75 mcg	50%
Magnesium (as dimagnesium malate and magnesium lysyl glycinate chelate) ^{S1}	100 mg	24%
Zinc (zinc bisglycinate chelate) ^{S1}	15 mg	136%
Selenium (as selenium glycinate complex) ^{S1}	60 mcg	109%
Copper (as copper bisglycinate chelate) ^{S1}	1.5 mg	167%
Manganese (as manganese bisglycinate chelate) ^{S1}	2 mg	87%
Chromium (as chromium nicotinate glycinate chelate) ^{S1}	75 mcg	214%
Molybdenum (as molybdenum glycinate chelate) ^{S1}	50 mcg	111%
Potassium (as potassium glycinate complex) ^{S1}	50 mg	1%
Betaine HCl	200 mg	**
Lithium (as lithium orotate)	250 mcg	**
Vanadium (as vanadium nicotinate glycinate chelate) ^{S1}	30 mcg	**
** Daily Value not established.		

Other Ingredients: Capsule (hypromellose and water), microcrystalline cellulose, stearic acid, medium-chain triglyceride oil, magnesium stearate, and silica.

DIRECTIONS: Take two capsules daily, or as directed by your healthcare professional.

Consult your healthcare professional prior to use. Individuals taking medication should discuss potential interactions with their healthcare professional. Do not use if tamper seal is damaged.

STORAGE: Keep closed in a cool, dry place out of reach of children.

FORMULATED TO EXCLUDE: Wheat, gluten, yeast, soy, animal and dairy products, fish, shellfish, peanuts, tree nuts, egg, sesame, ingredients derived from genetically modified organisms (GMOs), artificial colors, artificial sweeteners, and artificial preservatives.



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Individuals who want to support their general well-being, mineral nutrition, and glucose/insulin metabolism, as well as individuals who need to replace minerals lost through intense exercise, increased excretion, or absorption challenges may benefit from MinRex.*

References

1. TRAACS FT-IR. Albion Web site. <http://www.albionminerals.com/human-nutrition/quality/traacs-ft-ir-analysis>. Published 2011. Accessed November 12, 2012.
2. Research Done on Albion Chelates. Albion Human Nutrition. <http://www.albionnutritionalfacts.com/research>. Accessed November 12, 2012.
3. Implications of the "other half" of mineral compound. *Albion® Research Notes*. http://www.albionhumannutrition.com/research-notes/download/doc_details/738-implications-of-the-qother-half-q-of-a-mineral-compound. Accessed November 5, 2012.
4. Russel IJ, Michalek JE, Flechas JD, et al. Treatment of fibromyalgia syndrome with Super Malic: a randomized, double blind, placebo controlled, crossover pilot study. *J Rheumatol*. 1995 May; 22(5):953-58. [PMID:8587088]
5. Bengtsson A, Henriksson KG. The muscle in fibromyalgia—a review of Swedish studies. *J Rheumatol Suppl*. 1989 Nov; 19: 144-49. [PMID: 2691674]
6. Sánchez C, Torres M, Bermúdez-Peña MC, et al. Bioavailability, tissue distribution and hypoglycaemic effect of vanadium in magnesium-deficient rats. *Magnes Res*. 2011 Dec;24(4):196-208. [PMID: 22068015]
7. Mehdi MZ, Pandey SK, Theberge JF, et al. Insulin signal mimicry as a mechanism for the insulin-like effects of vanadium. *Cell Biochem Biophys*. 2006;44(1):73-81. [PMID: 16456236]
8. Dixon JF, Hokin LE. Lithium acutely inhibits and chronically up-regulates and stabilizes glutamate uptake by presynaptic nerve endings in mouse cerebral cortex. *Proc Natl Acad Sci U S A*. 1998 Jul 7;95(14):8363-68. [PMID: 9653192]
9. Jeppsen RB, Bourdonnais A, Ashmead HD. The nutritional benefits and safety of minerals which have been chelated with amino acids. Paper presented at: 6th International Symposium on Chelating Agents in Pharmacology, Toxicology and Therapeutics; September 7-9, 2000; Pilsen, Czech Republic [abstract from Albion. <http://www.albionnutritionalfacts.com/research>. Accessed November 12, 2012].
10. Córdova A, Navas FJ. Effect of training on zinc metabolism: changes in serum and sweat zinc concentrations in sportsmen. *Ann Nutr Metab*. 1998;42(5):274-82. [PMID: 9812018]
11. Santos DA, Matias CN, Monteiro CP, et al. Magnesium intake is associated with strength performance in elite basketball, handball and volleyball players. *Magnes Res*. 2011 Dec;24(4):215-19. [PMID: 21983266]
12. Latunde-Dada GO. Iron metabolism in athletes - achieving a gold standard. *Eur J Haematol*. 2012 Oct 18. doi: 10.1111/ejh.12026. Epub ahead of print. [PMID: 23078160]

Additional references available upon request

All XYMOGEN® Formulas Meet or Exceed cGMP Quality Standards.

*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.

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