

Manganese

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Related Terms

- [Manganese Chloride](#); [Manganese Gluconate](#); [Manganese Picolinate](#); [Manganese Sulfate](#)

Principal Proposed Uses

- [Dysmenorrhea \(Menstrual Pain\)](#); [Osteoporosis](#) (in Combination With Other Minerals)

Other Proposed Uses

- [Diabetes](#); [Epilepsy](#); [Muscle Sprains/Strains](#); [Rheumatoid Arthritis](#); [Tardive Dyskinesia](#)
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Our bodies contain only a very small amount of manganese, but this metal is important as a constituent of many key enzymes. The chemical structure of these enzymes is interesting: large protein molecules cluster around a tiny atom of metal.

Manganese plays a particularly important role as part of the natural antioxidant enzyme superoxide dismutase (SOD), which helps fight damaging free radicals. It also helps energy metabolism, thyroid function, blood sugar control, and normal skeletal growth.

Requirements/Sources

The official US recommendations for daily intake of manganese are as follows:

- **Infants**
 - 0-6 months: 0.003 mg
 - 7-12 months: 0.6 mg
- **Children**
 - 1-3 years: 1.2 mg
 - 4-8 years: 1.5 mg
- **Males**
 - 9-13 years: 1.9 mg
 - 14-18 years: 2.2 mg
 - 19 years and older: 2.3 mg
- **Females**
 - 9-18 years: 1.6 mg
 - 19 years and older: 1.8 mg
 - Pregnant women: 2 mg
 - Nursing women: 2.6 mg

The absorption of manganese may be impaired by simultaneous intake of antacids or calcium or iron supplements.¹³⁻¹⁵

The best sources of dietary manganese are whole grains, legumes, avocados, grape juice, chocolate, seaweed, egg yolks, nuts, seeds, boysenberries, blueberries, pineapples, spinach, collard greens, peas, and green vegetables.

Therapeutic Dosages

A typical dosage used in studies on manganese is 3 to 6 mg daily. It is sometimes recommended at a much higher dose of 50 to 200 mg daily for 2 weeks following a muscle sprain or strain, but this dosage exceeds recommended safe intake levels (see Safety Issues).

Therapeutic Uses

Because manganese plays a role in bone metabolism, it has been suggested as a treatment for osteoporosis, a condition in which bone mass deteriorates with age. However, we have no direct evidence that manganese is helpful, except perhaps in combination with other minerals.⁴

One small but rigorous study suggests that making sure to get enough manganese may help control symptoms of dysmenorrhea (menstrual pain).²

Manganese has also been suggested for the treatment of muscle strains and sprains, rheumatoid arthritis, and tardive dyskinesia,⁶ but there is no reliable evidence as yet to indicate that it actually helps.

People with epilepsy⁷ or diabetes^{8,9} have lower-than-normal levels of manganese in their blood. This suggests (but definitely doesn't prove) that manganese supplements might be useful for these conditions. Unfortunately, the studies that could prove or disprove this idea haven't been performed.

What Is the Scientific Evidence for Manganese?

Osteoporosis

Although manganese is known to play a role in bone metabolism, there is no direct evidence that manganese supplements can help prevent osteoporosis. However, one double-blind placebo-controlled study suggests that a combination of minerals including manganese may be helpful.¹⁰ Fifty-nine women took either placebo, calcium (1,000 mg daily), or calcium plus a daily mineral supplement consisting of 5 mg of manganese, 15 mg of zinc, and 2.5 mg of copper. After 2 years, the group receiving calcium plus minerals showed better bone density than the group receiving calcium alone. But this study doesn't tell us whether it was the manganese or the other minerals that made the difference.

Dysmenorrhea (Menstrual Pain)

One very small, but well-designed and carefully conducted double-blind study suggested that 5.6 mg of manganese daily might ease menstrual discomfort.¹¹ In the same study, a lower dosage of 1 mg daily *wasn't* effective.

Safety Issues

Manganese is thought to be safe when taken by adults at a dose of 11 mg daily or less. The maximum safe

dosage of manganese for pregnant or nursing women has also been established as 11 mg daily, or 9 mg if 18 years old or younger.¹²

Very high exposure to manganese (due either to environmental pollution or manganese mining) has resulted in a serious psychiatric disorder known as "manganese madness."

Interactions You Should Know About

If you are taking:

- Iron, copper, zinc, magnesium, or calcium: You may need extra manganese, and vice versa.
- Antacids: You may also need extra manganese.

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