

# Evidence-based Manganese Usage

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**Name(s):** Manganese sulfate, manganese chloride, manganese picolinate, manganese gluconate

**Description:** This trace mineral is an enzyme activator for the utilisation some nutrients including choline, biotin, vitamin C, and thiamine. It seems as if manganese has a part in all biological process including fatty acid and cholesterol synthesis, production of proteins, fats, and carbohydrates, and for regulating blood sugar levels. Other important functions of this mineral are the production of milk for lactation, maintaining sex hormone production, and the formation of urea, blood, and collagen. Some sources of manganese include egg yolks, legumes, whole-grain cereals, dried peas, seeds, and green vegetables.<sup>1</sup>

**Absorption/Storage:** About 40% of the manganese consumed is absorbed by the small intestine. Very little of this mineral is stored; however, the pancreas, liver, bones, and pituitary contain some. The excess amount of choline is excreted in the faeces.<sup>1</sup>

**Recommended Dietary Allowance/Dietary Reference Intake:** Because a lack of manganese is rare, there is no RDA or RNI for it. The following daily intakes are thought to be plenty for most individuals:

- Birth to 3 years of age: 0.3 to 1.5 milligrams (mg).
- 4 to 6 years of age: 1.5 to 2 mg.
- 7 to 10 years of age: 2 to 3 mg.
- Adolescents and adults--2 to 5 mg.<sup>2</sup>

**Optimum Daily Allowance (Adult):** 3-10 mg.<sup>3</sup>

**Tolerable Upper Intake Levels:** None available.

**Principal Uses:** Epilepsy,<sup>4-8</sup> and tardive dyskinesia.<sup>9-11</sup>

**Proposed Uses:** Dysmenorrhea/menstrual pain (with calcium),<sup>12</sup> osteoporosis (with calcium, zinc and copper),<sup>13</sup> diabetes, inflammation, sprains and strains.<sup>14</sup>

**Traditional Uses:** Hypoglycaemia and Osgood-Schlatter disease.<sup>15</sup>

**Healthy Sources:**

High (40%+ US DRI): Almonds, barley, Brazil nuts, buckwheat, pecans, rye, split peas, fresh spinach, walnuts and whole wheat.<sup>14</sup>

Medium (25-39% US DRI): Oats, peanuts, raisins, rhubarb and turnip greens.<sup>14</sup>

**Contraindications:** If you are taking this dietary supplement without a prescription, carefully read and follow any precautions on the label. For manganese, the following should be considered:

**Allergies--**Tell your health care professional if you have ever had any unusual or allergic reaction to manganese. Also tell your health care professional if you are allergic to any other substances, such as foods, preservatives, or dyes.

**Pregnancy--**It is especially important that you are receiving enough vitamins and minerals when you become pregnant and that you continue to receive the right amount of vitamins and minerals throughout your pregnancy. The healthy growth and development of the foetus depend on a steady supply of nutrients from the mother. However, taking large amounts of a dietary supplement in pregnancy may be harmful to the mother and/or foetus and should be avoided.

**Breast-feeding--**It is important that you receive the right amounts of vitamins and minerals so that your baby will also get the vitamins and minerals needed to grow properly. However, taking large amounts of a dietary supplement while breast-feeding may be harmful to the mother and/or baby and should be avoided.

**Children--**Problems in children have not been reported with intake of normal daily-recommended amounts.

**Older adults--**Problems in older adults have not been reported with intake of normal daily-recommended amounts.

**Medicines or other dietary supplements--**Although certain medicines or dietary supplements should not be used together at all, in other cases they may be used together even if an interaction might occur. In these cases, your health care professional may want to change the dose, or other precautions may be necessary. Tell your health care professional if you are taking any other dietary supplement or any prescription or non-prescription (over-the-counter [OTC]) medicines.

**Other medical problems--**The presence of other medical problems may affect the use of manganese. Make sure you

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tell your health care professional if you have any other medical problems, especially:

- Biliary disease or
- Liver disease--Taking manganese supplements may cause high blood levels of manganese, and dosage of manganese may have to be changed.<sup>2</sup>

## Interactions:

Decreases Mineral Availability:	Oral contraceptives, <sup>15</sup> calcium supplements and iron supplements. <sup>16</sup>
Increases Mineral Availability:	Vitamin B complex, vitamin E, <sup>3</sup> and zinc. <sup>16</sup>
Is Decreased By Mineral Availability:	Ciprofloxacin. <sup>15</sup>

**Deficiency:** Manganese deficiency has not been reported in humans. Lack of manganese in animals has been found to cause improper formation of bone and cartilage, may decrease the body's ability to use sugar properly, and may cause growth problems.<sup>2</sup>

**Toxicity/Side Effects:** Amounts found in supplements (5–20 mg) have not been linked with any toxicity. Excessive intake of manganese can lead to the rare side effects of dementia and psychiatric symptoms. Preliminary research suggests that individuals with cirrhosis may not be able to properly excrete manganese; until more is known, these people should not supplement manganese.<sup>15</sup>

**Treatment for Overdose:** Since most symptomatic exposures are chronic, emesis with ipecac or gastric lavage may be used to eliminate large acute ingestions. Chronically exposed patients may become obtunded or may develop acute respiratory symptoms, and should not receive lavage or ipecac. Single dose activate charcoal will not absorb manganese, but is useful for coingestants.<sup>17</sup>

**Storage:** To store this dietary supplement:

- Keep out of the reach of children.
- Store away from heat and direct light.
- Do not store in the bathroom, near the kitchen sink, or in other damp places. Heat or moisture may cause the dietary supplement to break down.
- Keep the dietary supplement from freezing. Do not refrigerate.

- Do not keep outdated dietary supplements or those no longer needed. Be sure that any discarded dietary supplement is out of the reach of children.<sup>2</sup>

## References:

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