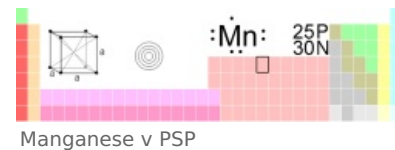


# Manganese

Manganese is important for bone structure, CNS function and a whole range of enzymes (pyruvate carboxylases, SOD, kinases, decarboxylases...).

## Function

It participates in the process of oxidative phosphorylation, thereby interfering with fat metabolism → highest concentration in cells – in mitochondria.



## Source

Sources of manganese are oatmeal, whole grain bread, tea and cocoa. **The estimated daily requirement** (recommended dose cannot be determined) is **2-3 mg<sup>[1]</sup>**. It is excreted in bile

## Deficit

**The deficiency** is exceptional, it can cause an increase in the level of blood lipids and associated premature atherosclerosis. Dermatitis or digestive disorders can also occur.

## Toxicity

In the 19th century, it manifested itself in miners - "manganese madness" - mental disorders, parkinsonism.

## Links

## References

1. BENCKO, Vladimír, et al. *Hygiena - učební texty k seminářům a praktickým cvičením*. 2. edition. Prague : Charles University, 2002. 204 pp. ISBN 80-7184-551-5.

## Related articles

- Trace elements

## Source

- BENEŠ, Jiří. *Studijní materiály* [online]. ©2007. [cit. 2009]. <<http://www.jirben.wz.cz>>.

## References

- BENCKO, Vladimír, et al. *Hygiena - učební texty k seminářům a praktickým cvičením*. 2. edition. Prague : Charles University, 2002. 204 pp. ISBN 80-7184-551-5.
- SCHNEIDERKA, Petr, et al. *Kapitoly z klinické biochemie*. 2. edition. Prague : Karolinum, 2004. ISBN 80-246-0678-X.
- MASOPUST, Jaroslav – PRŮŠA, Richard, et al. *Patobiochemie metabolických drah*. 2. edition. Prague : Charles University, 2004. 192; 208 pp.