

# NeuroMag™

For keeping the brain and neurons healthy



By David M. Brady, ND, DC, CCN, DACBN & Suzanne Copp, MS

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**NeuroMag™** features the unique, patented, chelated mineral Magtein™, which is magnesium chelated to threonic acid (magnesium L-threonate). This ionophore has been found to be superior to other forms of magnesium at getting through the blood brain barrier as it is able to transport ions (in this case magnesium ions) across lipid membranes, including brain cells.

## Why magnesium for the brain?

Magnesium deficiency is well known to produce neuropathologies. Only 16% of the magnesium found in whole wheat remains in refined flour, and magnesium has been removed from most drinking water supplies, setting a stage for magnesium deficiency. This is aggravated by the fact that magnesium is depleted by stress, sweating, alcohol consumption and many medications. Magnesium ions regulate calcium ion flow in neuronal calcium channels, helping to regulate neuronal nitric oxide production. In magnesium deficiency, neuronal requirements for magnesium may not be met, causing neuronal damage, which could manifest as memory loss, depression and more.

Anxiety disorders, such as phobias and post traumatic stress disorder, are among the most common mental disorders and are associated with magnesium deficiency. Stress exposure, depending on its intensity and duration, affects cognition and learning. Follows is a direct quote from a study published in the *Journal of Neurosciences*, 2011: "Studies suggest that enhancement of plasticity in certain brain regions such as the prefrontal cortex (PFC) and/or hippocampus might enhance the efficacy of cognitive therapy. We found that elevation of brain magnesium, by a novel magnesium compound [magnesium-L-threonate (MgT)], enhances synaptic plasticity in the hippocampus and learning and memory in rats. Here, we show that MgT treatment enhances retention of the extinction of fear memory, without enhancing, impairing, or erasing the original fear memory." Even aged rats showed improvement in memory.

Several studies indicate that these same synaptic connections in the brain hippocampus, a critical brain region for learning and memory, decline during aging. Studies have also found low levels of magnesium in the brains of patients suffering from Alzheimer's disease. NeuroMag's Magtein™ was found in animal studies to increase learning ability, working memory, and short- and long-term memory. NeuroMag™ enhances functioning of the hippocampus by improving synaptic plasticity and NMDA (N-Methyl-D-aspartate) receptor-dependent signaling. Researchers at MIT conclude that elevating brain magnesium levels with Magtein™ may be beneficial in enhancing cognitive abilities and preventing age-related memory decline. Increasing plasticity in the prefrontal cortex and amygdala of the brain improves memory because these brain areas are also deeply involved in mediating the effects of exposure to stress on memory.

## Supplement Facts

Serving Size 3 capsules

Servings Per Container 30

Amount Per Serving	% Daily Value	
Magnesium (as Magnesium L-Threonate)	144 mg	36%
Magtein™ (as Magnesium L-Threonate)	2 g	*

\*Daily Value not established.

**Other Ingredients:** Cellulose (capsule), microcrystalline cellulose, vegetable stearate.



## How To Take:

- Take 2 grams (3 capsules) for maintenance
- For best results, take NeuroMag™ in divided doses
- Take 3-4 grams for memory loss or recognition difficulties
- Consider combining with Brain Vitale™ capsules

## References

1. Effects of elevation of brain magnesium on fear conditioning, fear extinction, and synaptic plasticity in the infralimbic prefrontal cortex and lateral amygdala. Abumaria N, et al. J Neurosci. 2011 Oct 19;31(42):14871-1.
2. Kalzium ist nicht alles. Bush AI. Neuron. 2010 Jan 28;65(2):143-4.
3. Enhancement of learning and memory by elevating brain magnesium. Slutsky I, et al. Neuron. 2010 Jan 28;65(2):165-77.
4. The role of the medial prefrontal cortex-amygdala circuit in stress effects on the extinction of fear. Akirav I, Maroun M. Neural Plast. 2007; 2007:30873. Epub 2007 Jan 16.

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