By increasing magnesium concentration in the extracellular fluid, researchers observed permanent enhancement of synaptic plasticity in networks of cultured hippocampal neurons. Delving deeper into the mechanisms involved, later animal research showed that magnesium increased receptor signaling; specifically, the signaling of the NR2B-containing N-methyl-D-aspartate (NMDA) receptor. NMDA receptors are rich in the hippocampus and play a pivotal role in memory processes. Data from these studies suggest that increasing brain magnesium with Magtein "enhances both short-term synaptic facilitation and long-term potentiation and thereby supports synaptic plasticity and learning and memory functions in rats."  

Magtein Supports Cognitive Health

The benefits of Magtein were observed in several pre-clinical animal studies that used assessments, such as the NORT (novel object recognition test), T-maze, Morris water maze, conditioned fear memory, and conditioned taste aversion. In these studies, researchers demonstrated that when brain magnesium levels were increased, significant benefits were detected in multiple aspects of learning and memory in young and aged rodents. For instance, NORT tests performed by Slutsky et al revealed ≈135% improvement in short-term memory and ≈85% improvement in long-term memory of aged rats treated with Magtein as compared to control (untreated) rats.  

One study examined the effects of Magtein in test mice (genetically altered mice that model age-related cognitive changes). Li et al found that the test mice not given Magtein exhibited “unequivocal learning deficits,” while the test mice given Magtein performed similarly to normal mice. In short, Magtein helped preserve normal brain function. When magnesium levels in the brain tissue were quantified, the relationship became even clearer: According to researchers, brain magnesium levels positively correlated with cognitive function; that is, the lower a mouse’s brain magnesium level, the poorer its memory function in the NORT task. Furthermore, histological analysis of brain tissue showed that Magtein administration preserved synapse density and NMDA receptor signaling and also had positive effects on the expression of certain proteins associated with changes in memory.  

Clinical Applications

» Supports Healthy Brain Magnesium Levels*
» Supports Healthy Synapse Number and Function*
» Supports Cognitive Health*
» Supports Stress Management, Sleep Quality, and a Healthy Mood*
» Helps Ensure an Optimal Magnesium Intake for Overall Health*

*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.
### OptiMag Neuro™ Supplement Facts

<table>
<thead>
<tr>
<th>Serving Size: 1 Scoop (about 2.5 g)</th>
<th>Amount Per Serving</th>
<th>% Daily Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Total Carbohydrate</td>
<td>2 g</td>
<td>1%</td>
</tr>
<tr>
<td>Magnesium (as Albion® di-magnesium malate, Magtein™ magnesium L-threonate, and TRAACS® magnesium lysinate glycinate chelate)</td>
<td>200 mg</td>
<td>50%</td>
</tr>
<tr>
<td>Magtein™ (magnesium L-threonate)</td>
<td>1 g</td>
<td>**</td>
</tr>
</tbody>
</table>

1. Percent Daily Values are based on a 2,000 calorie diet.
2. ** Daily Value not established.

Other Ingredients: Citric acid, malic acid, natural flavors (no MSG), stevia leaf extract, and anthocyanin extract (color).

### DIRECTIONS:
Dissolve one level scoop in 4 oz water or adjust amount of water to desired sweetness. First week: one serving per day immediately before dinner or one hour before bedtime. Thereafter: one serving during the day, preferably mid-afternoon, and a second serving before bedtime; or use as directed by your healthcare practitioner.

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

### DOES NOT CONTAIN:
Wheat, gluten, yeast, soy, animal or dairy products, fish, shellfish, peanuts, tree nuts, egg, ingredients derived from genetically modified organisms (GMOs), artificial colors, artificial sweeteners, or artificial preservatives.

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

### References

Additional references available upon request

A large-scale human clinical trial has recently been completed. The results, publication forthcoming, support the in vitro and animal findings that Magtein positively affects memory, cognition, and synaptic density.*

**Magnesium in Stress Management, Sleep Quality, and Mood**
Magnesium is known to benefit the body in ways that counter stress, promote restful sleep, and support a healthy mood. In rats, magnesium administration attenuated neurologic changes brought on by chronic mild stress. Additionally, by increasing fear memory extinction, Magtein showed promise as a modulator of worry. In human studies, magnesium supplementation partially reversed sleep changes associated with aging and improved objective and subjective measures of sleep.

**Improving sleep quality and countering the effects of chronic stress positively impact mood—another area that is benefically influenced by optimal magnesium status.*[8,9,13,14]"