

# Magtein®

## BRAIN HEALTH

### *6 Functional Categories*

Mood  
Calm  
Sleep  
Memory  
Focus  
Brain Energy



In the United States, nearly one out of every four adults over the age of 70 has cognitive impairment and over one out of ten of those individuals progress to dementia every year. Nearly 47 million Americans have preclinical Alzheimer's disease with over 6 million Americans diagnosed with Alzheimer's disease. This is projected to increase to 15 million by 2060.

A primary cause of cognitive decline is synapse loss, or the connections between the neurons in the brain. Synapses help to code our memory and allow neurons to communicate with each other. The loss in synapses leads to memory loss and cognitive impairment. A reduction in magnesium levels in the brain may play a leading role in this loss of synapses. In fact, patients with Alzheimer's disease have been found to have low levels of magnesium in the brain.

A unique magnesium supplement called Magtein® (magnesium L-threonate) has been shown to increase brain levels of magnesium and functional neuronal terminals compared to other magnesium supplements including magnesium citrate, gluconate, malate and glycinate in animal studies. Furthermore, Magtein® also has been shown to prevent synaptic loss and reverse cognitive deficits in Alzheimer's disease animal models. In patients with cognitive impairment, Magtein® was shown to significantly improve overall cognitive ability and reverse the equivalent of 9 years of brain aging. Magtein® has also been shown to improve the MMSE score in patients with mild to moderate probable Alzheimer's disease.

Thus, Magtein® is a unique "brain boosting" magnesium supplement that has been shown to improve memory and cognition in those with cognitive impairment.

# formula Magtein® ENERGY

Having energy throughout the day is extremely important in order to be productive and to have lasting energy to perform work tasks throughout the day. Millions of Americans turn to coffee everyday as a brain energy boost, but many people don't like how it makes them feel jittery.

**Magtein®** is a supplement that naturally helps to support brain energy. Magtein® increases magnesium in the brain which helps to support energy production in the brain.

**Rhodiola** is an adaptogenic shrub that has been used in traditional medicine to alleviate anxiety, stress, fatigue and depressed mood for centuries.

**Ginseng** contains two main active ingredients, ginsenosides and gintonin.

**Caffeine** is a natural stimulant that provides increased energy throughout the day.

## formulas at a glance

**Target population:** Gamers & executives



**Dose:**  
1-2 grams

**Mechanism of Action:**  
Increases brain magnesium levels and increases energy production in the brain.



### Rhodiola

**Dose:**  
400 mg

**Mechanism of Action:**  
Stimulates brain function. Lowers cortisol levels. Combats mental and physical fatigue.

**Why it Works:**  
Decreases cortisol response to awakening stress perhaps via reducing corticotropin-releasing factor.

### Ginseng (American or Panax)

**Dose:**  
250-2,000 mg

**Mechanism of Action:**  
Lowers oxidative stress in the brain, reduces fatigue after stressful events.

**Why it Works:**  
Increases energy production in cells, increases lactate dehydrogenase activity and reduces lactic acid levels in blood, increases mitochondrial biogenesis factors and mitochondrial DNA in skeletal muscles of animals and may be good for reducing exercise fatigue.

### Caffeine

**Dose:**  
80-160 mg

**Mechanism of Action:**  
Stimulates the brain.

**Why it Works:**  
Stimulates sympathetic nervous system and inhibits adenosine receptors.

# Energy Formula 1

Magtein® + Rhodiola + Ginseng +/- Caffeine



## Description

- + Magtein® is a patented form of magnesium L-threonate that increases magnesium levels in neurons.
- + Rhodiola is an adaptogenic shrub that has been used in traditional medicine to alleviate anxiety, stress, fatigue and depressed mood for centuries.



## Mechanism of Action

**Magtein®** Magtein increases brain magnesium levels, which increases neuronal synaptic density, function and plasticity. Magtein® has been shown to improve memory and cognition in those with mild cognitive impairment.<sup>20</sup>

**Rhodiola<sup>38</sup>** Has a stimulant type of effect in the brain and improves learning via stimulation of nicotinic, cholinergic, noradrenergic, 5-hydroxytryptaminic and dopamine receptors in selected brain regions may contribute to its adaptogenic effects.

*Decreases stress related fatigue due its adaptogenic effects.*

*Decreases cortisol response to awakening stress perhaps via reducing corticotropin-releasing factor.*

*Improves mental performance and the ability to concentrate.*

*Helps individuals with mental and physical fatigue resulting from stress conditions.*

**Ginseng** Contains two main active ingredients, ginsenosides and gintonin

*Protects the brain against damage caused by free radicals*

*Lowers oxidative stress*

*Increases energy production in cells, increases lactate dehydrogenase activity and reduces lactic acid levels in blood, increases mitochondrial biogenesis factors and mitochondrial DNA in skeletal muscles of animals and may be good for reducing exercise fatigue.<sup>40</sup>*

*Water soluble polysaccharides have anti-fatigue activity.<sup>41, 42</sup>*

**Caffeine** Stimulates the sympathetic nervous system and blocks adenosine receptors.

### **Dose:**

Magtein 1-2 grams.

Rhodiola 400 mg per day.

Ginseng 250-2,000mg.

Caffeine 80-160mg.

### **Safety:**

Good safety data from clinicals

### **Benefit:**

Stimulates brain function. Lowers cortisol levels. Combats mental and physical fatigue.

### **Claims:**

Supports mental focus.

Supports mental performance.

Supports learning.

Supports physical and mental work capacity during stress.

Supports fatigue.

## **Clinicals**

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### **Rhodiola**

1. Rhodiola in 100 patients with prolonged or chronic fatigue symptoms, 200 mg twice daily significantly improved fatigue symptoms and had a good safety profile.<sup>39</sup>
2. Rhodiola exerts an anti-fatigue effect that increases mental performance, particularly the ability to concentrate, and decreases cortisol response to awakening stress in burnout patients with fatigue syndrome.<sup>38</sup>
3. Clinical effects and good tolerability were observed at daily Rhodiola extract doses of 340–680 mg with treatment durations of up to 42 days.

### **Ginseng**

1. Patients with chronic fatigue 20% ethanol extract of 1 gram of panax ginseng reduced physical and mental fatigue.<sup>43</sup>
2. Cancer survivors – 1,000 to 2,000 mg of American ginseng lead to lower fatigue levels vs. placebo.<sup>44</sup>
3. Meta-analysis of 4 randomized controlled trials shows that ginseng significantly reduces fatigue.<sup>45</sup>
4. Lowest effective dose is 200 mg.<sup>46</sup>