

# CERENITY PM



## CLINICAL APPLICATIONS

- *Formulated Specifically for Patients with Occasional Sleeplessness*
- *Promotes Calmness and Relaxation*
- *Supports Normal, Uninterrupted Sleep*
- *Provides Comprehensive Neurotransmitter Support*

## ENDOCRINE HEALTH

Cerenity PM is a comprehensive formulation created for patients experiencing occasional sleeplessness. Cerenity PM promotes a healthy sleep cycle by naturally boosting levels of serotonin, GABA and melatonin using bioactive cofactors and amino acids. Phosphatidylserine is also included as a vital ingredient for those with elevated evening cortisol levels that may be contributing to frequent waking.

### Overview

Sleep is the body's way of metabolically and psychologically resetting itself. The body's circadian rhythm is regulated by an internal biological clock with an approximate 24-hour cycle. In order to maintain restorative sleep, it is crucial that the brain has optimal levels of serotonin and gamma-aminobutyric acid (GABA), the relaxing and sleep-regulating neurotransmitters, as well as the sleep-regulating hormone melatonin. The synergistic ingredients in Cerenity PM boost levels of the neurotransmitters and hormones that promote relaxation prior to bedtime and increase the deep, restorative stages of sleep.

### 5-HTP<sup>†</sup>

The sleep-regulating hormone melatonin requires the essential amino acid L-tryptophan for conversion. A deficiency of L-tryptophan in the diet can lead to low serotonin and melatonin levels, which can contribute to sleep challenges. L-tryptophan is converted into the amino acid intermediate 5-hydroxytryptophan (5-HTP), which is then converted directly into serotonin, followed by melatonin conversion. While L-tryptophan is the starting block for serotonin and melatonin production, one of the key advantages of 5-HTP is its ability to easily cross the blood brain barrier. This allows for enhanced serotonin and melatonin synthesis. Clinical studies have demonstrated the ability of 5-HTP to promote and enhance sleep. 5-HTP increases REM sleep by

about 25%, while increasing deep sleep stages 3 and 4, without lengthening total sleep time.<sup>1,2</sup> Non-REM stages 1 and 2, the least important stages, are reduced to compensate for this increase, resulting in an increase in sleep efficiency.<sup>1,2</sup> 5-HTP has also been shown to be far more effective in promoting sleep when compared to L-tryptophan.<sup>3,4</sup>

### PharmaGABA<sup>®†</sup>

Gamma-aminobutyric acid (GABA) is one of the major inhibitory neurotransmitters in the brain. GABA provides a calming effect and plays a direct role in activating the sleep cycle in the evening. Cerenity PM includes a patented, naturally sourced, non-synthetic form of GABA called PharmaGABA<sup>®</sup>. In a study utilizing 100 mg of PharmaGABA<sup>®</sup>, supplemented before bedtime, PharmaGABA<sup>®</sup> was shown to reduce sleep latency by 20%, while increasing time spent in a deep sleep by 20%.<sup>5</sup> PharmaGABA<sup>®</sup> has also been shown by electroencephalogram (EEG) readings to increase the ratio of alpha to beta waves in the brain, resulting in a calm and effortless state of relaxation.<sup>6]</sup>

### Phosphatidylserine<sup>†</sup>

Phosphatidylserine (PS) is a phospholipid found in high concentrations in the brain. Phosphatidylserine has been shown to play a role in regulating cortisol excretion. Elevated levels of cortisol throughout the night can contribute to frequent waking. In studies administering PS (50-800mg) to subjects under high levels of stress (physical and mental), PS was shown to reduce stress-induced secretion of cortisol.<sup>7,8</sup> When taken in the evening, PS can help reduce cortisol excretion from the body's stress response system, the hypothalamic-pituitary-adrenal (HPA) axis, in order to promote a healthy sleep cycle.

<sup>†</sup> 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.

Taurine†

Taurine is an amino acid that is found abundantly in the brain and has neuroprotective properties.<sup>9</sup> Taurine promotes inhibitory neurotransmission by activating GABA receptors.<sup>9</sup> Taurine also supports inhibitory neurotransmission by activating glycine receptors in the brain.<sup>10</sup>

Mineral Blend†

Calcium and magnesium are two minerals that play a major role in supporting a healthy sleep cycle. Magnesium calms the nervous system and has been shown to play a role in the regulation of the HPA axis. Magnesium promotes relaxation by decreasing the activity of glutamate, the primary excitatory (stimulating) neurotransmitter in the brain. Magnesium blocks glutamate from binding to its receptor, allowing for an increase in GABA activity, which activates the sleep cycle. Within the HPA axis, the body’s stress response system, magnesium has also been shown to decrease the release of the stress hormone cortisol, following oral magnesium administration.<sup>11</sup>

Serotonin concentrations in the brain decrease by more than 80% after the onset of darkness. This is when serotonin is converted into melatonin in the pineal gland. Calcium ions are a critical requirement in the synthesis of melatonin.<sup>12</sup> The combination of 5-HTP and calcium in Cerenity PM provides a significant and natural boost to melatonin levels, aiding in the conversion and activation of this crucial sleep hormone.

Micronutrients†

Cerenity PM includes essential nutrients that are required cofactors for the synthesis of serotonin and GABA. This includes 5-methyltetrahydrofolate (5-MTHF), vitamin B6 (P-5-P), vitamin C, zinc and magnesium to enhance neurotransmitter synthesis.<sup>13</sup>

Directions

4 capsules taken 1-2 hours before bedtime or as recommended by your health care professional.

Does Not Contain

Gluten, artificial colors or flavors.

Cautions

Do not consume this product if you are pregnant or nursing. Consult with your health care professional for further information.

Supplement Facts <sup>v2</sup>		
Serving Size 4 Capsules Servings Per Container 15 & 30		
	Amount Per Serving	% Daily Value
Vitamin C (as Ascorbic Acid USP)	50 mg	56%
Niacin (as Niacinamide USP)	10 mg	63%
Vitamin B6 (as Pyridoxal-5'-Phosphate)	10 mg	588%
Folate (from 400 mcg as Quatrefolic® (6S)-5-Methyltetrahydrofolic acid glucosamine salt)	680 mcg DFE	170%
Calcium (as Albion® Minerals Dicalcium Malate)	250 mg	19%
Magnesium (as DiMagnesium Malate)	150 mg	36%
Zinc (as Albion® Minerals Zinc Bisglycinate Chelate)	5 mg	45%
Taurine USP	300 mg	*
5-HTP (5-Hydroxytryptophan) (from Griffonia simplicifolia (Seed))	150 mg	*
Gamma Aminobutyric Acid (PharmaGABA™)	150 mg	*
Phosphatidylserine (from Sunflower Seed)	100 mg	*
* Daily Value not established.		

ID# 832060 60 Capsules  
ID# 832120 120 Capsules

† 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.

## References

1. Zarcone Jr VP, Hoodes E. Effects of 5-hydroxytryptophan on fragmentation of REM sleep in alcoholics. *Am J Psychiatry* 1975;132:74-76.
2. Soulaire A, Lambinet H. Effect of 5-hydroxytryptophan, a serotonin precursor, on sleep disorders. *Ann Med Psychol* 1977;1:792-798.
3. Wyatt RJ, Zarcone V, Engelman K. Effects of 5-hydroxytryptophan on the sleep of normal human subjects. *Electroencephalogr Clin Neurophysiol* 1972;30:505-509.
4. Wyatt RJ. The serotonin-catecholamine-dream bicycle: a clinical study. *Biol Psychiatry* 1972;5:33-64.
5. Unpublished data provided by Pharma Foods International LTD., Kyoto, Japan.
6. Abdou AL, et al. Relaxation and immunity enhancement effects of  $\gamma$ -aminobutyric acid (GABA) administration in humans. *Biofactors* 2006;26:201-208.
7. Monteleone P, Maj M, et al. Blunting by chronic phosphatidylserine administration of the stress-induced activation of the hypothalamo-pituitary-adrenal axis in healthy men. *Eur J Clin Pharmacol* 1992; 42(4):385-388.
8. Monteleone P, Beinart L, et al. Effects of phosphatidylserine on the neuroendocrine response to physical stress in humans. *Neuroendocrinology* 1990; 52(3):243-248.
9. Albrecht J, Zielinska M. The role of inhibitory amino acidergic neurotransmission in hepatic encephalopathy: a critical overview. *Metab Brain Dis*; 2002 Dec; 17(4): 283-294.
10. Jia F, Yue M, Chandra S, Keramidou A, Goldstein PA, Homanics GE, Harrison NL. Taurine is a potent activator of extrasynaptic GABA(A) receptors in the thalamus. *J Neurosci*; 2008 28(1):106-115.
11. Held K, Antonijevic IA, Kunzel H. Oral Mg<sup>2+</sup> supplementation reverses age-related neuroendocrine and sleep EEG changes in humans. *Pharmacopsych* 2002;35:135-143.
12. Jolanta B. Zawilska. The role of calcium in the regulation of melatonin biosynthesis in the retina. *Acta Neurobiol Exp* 1992;52:265-274.
13. Kaplan, Bonnie J, Crawford, et al. Vitamin, minerals, and mood. *Psychological Bulletin* 2007; Vol 133(5):747-760.