

EssentialKnowledge™

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Pain? Stress? Inflammation? Still looking for a solution?

In the 2008 Sleep in America poll from The National Sleep Foundation, 65% reported trouble sleeping a few nights per week. 44% reported trouble sleeping every night or almost every night.

Are you one of the many Americans in pain or stressed out and just can't sleep? Have you wondered why pain relievers and sleeping pills don't give you refreshing sleep? The answer could lie with serotonin.

As night falls, your brain begins converting tryptophan to serotonin and serotonin to melatonin. Then you fall asleep.

The Science Of Sleep *A Natural Process That Begins With Tryptophan*



As you can see, your sleep cycle begins when your body converts tryptophan to serotonin. When tryptophan levels rise, serotonin levels follow. Serotonin then creates a feeling of well-being and calm, helping to prepare you for sleep.

Your tryptophan and serotonin levels can be depleted by stress, hormones, caffeine and inflammation^{1,2}. This depletion leads to sleeplessness and fatigue. So you may not be suffering from actual sleeplessness, but from a serotonin deficiency.

Instead of focusing on sleep, we should be focusing on stress and inflammation and their effect on serotonin.

You can effectively raise serotonin levels naturally by supplementing your diet with 5-HTP, a tryptophan derivative, or the amino acid, tryptophan, the precursor to serotonin. This will also help manage stress³, anxiety⁴, depression⁵ and natural hormone cycle symptoms⁶. In addition, emerging research indicates enhanced blood levels of tryptophan may effectively benefit those with inflammatory disorders like fibromyalgia⁷ and arthritis⁸.

You can also maintain healthy tryptophan and serotonin levels by reducing inflammation or stress. You can reduce stress with yoga, exercise, reading, talking with friends or beginning soothing habits like drinking chamomile tea. A better work-life balance always helps. Alternative ways to reduce or cope with stress are through dietary supplements such as GABA, ashwagandha and St. John's Wort.

Very often sleeplessness is not just about pain and stress; it is about serotonin deficiency. So next time you are lying awake at 2 a.m., think about the sleep cycle and what could be causing your tryptophan and serotonin levels to drop. Are you stressed, anxious or just thinking too much? If your pain relievers or sleeping pills aren't boosting tryptophan and serotonin levels, investigate a few of the solutions above that will.

The information present herein is for educational purposes only. It is not intended to treat, prevent or diagnose any health problems. The information has not been evaluated by the FDA.

¹ Wichers M, Maes M. The psychoneuroimmuno-pathophysiology of cytokine-induced depression in humans. *Int J Neuropsychopharmacol.* 2002 Dec;5(4):375-88.

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²Schröcksnadel K, Wirleitner B, Winkler C, Fuchs D. Monitoring tryptophan metabolism in chronic immune activation. *Clin Chim Acta*. 2006 Feb;364(1-2):82-90.

³Linthorst AC and Reul JM. Stress and the brain: Solving the puzzle using microdialysis. *Pharmacol Biochem Behav*. Oct 3 2007.

⁴Gross C, Zhuang X, Stark K, et al. Serotonin1A receptor acts during development to establish normal anxiety-like behaviour in the adult. *Nature*. 2002 Mar 28;416(6879):396-400.

⁵Booij L, Van der Does AJ, Haffmans PM, et al. The effects of high-dose and low-dose tryptophan depletion on mood and cognitive functions of remitted depressed patients. *J Psychopharmacol*. 2005 May;19(3):267-75.

⁶Hrboticky N, Leiter LA, Anderson GH. Menstrual cycle effects on the metabolism of tryptophan loads. *Am J Clin Nutr*. 1989 Jul;50(1):46-52.

⁷Juhl JH. Fibromyalgia and the serotonin pathway. *Altern Med Rev*. 1998 Oct;3(5):367-75.

⁸Schroeksnadel K, Kaser S, Ledochowski M, Neurauter G, Mur E, Herold M, Fuchs D. Increased degradation of tryptophan in blood of patients with rheumatoid arthritis. *J Rheumatol*. 2003 Sep;30(9):1935-9.