

Melatonin also known chemically as ***N-acetyl-5-methoxytryptamine*** is a naturally occurring hormone found in animals and in some other living organisms, including algae. Circulating levels vary in a daily cycle, and melatonin is important in the regulation of the circadian rhythms of several biological functions. Many biological effects of melatonin are produced through activation of melatonin receptors, while others are due to its role as a pervasive and powerful antioxidant with a particular role in the protection of nuclear and mitochondrial DNA.

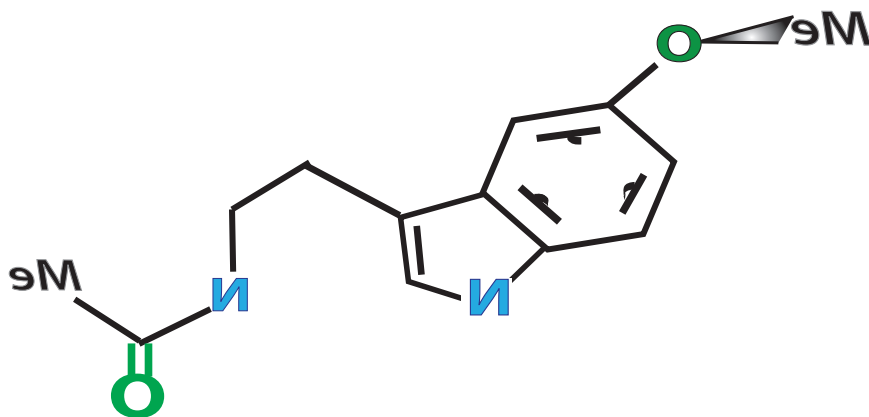
Products containing melatonin have been available as a dietary supplement in the United States since 1993. Foods may contain trace amounts of melatonin, but no food has been found to elevate plasma melatonin levels. Over-the-counter sales of the hormone remain illegal in many other countries, and the U.S. Postal Service lists melatonin among items prohibited by Germany.

The use of melatonin as a drug can entrain (synchronize) the circadian clock to environmental cycles and can have beneficial effects for treatment of certain forms of insomnia. Its therapeutic potential may be limited by its short biological half-life, poor bioavailability, and the fact that it has numerous non-specific actions. In recent studies though, prolonged release melatonin has shown good results in treating insomnia in older adults.

The primary motivation for the use of melatonin may be as a natural aid to better sleep. Incidental benefits to health and well-being may accumulate, due to melatonin's role as an antioxidant and its stimulation of the immune system and several components of endocrine system.

#### Dosage

Studies from Massachusetts Institute of Technology have said that melatonin pills sold as supplements contain three to ten times the amount needed to produce the desirable physiologic nocturnal blood melatonin level for a more rapid sleep onset. Dosages are designed to raise melatonin levels for several hours to enhance quality of sleep, but some studies suggest that smaller doses (for example 0.3 mg as opposed to 3 mg) are just as effective. Large doses of melatonin can even be counterproductive: Lewy et al. provide support to the "idea that too much melatonin may spill over onto the wrong zone of the melatonin phase-response curve" (PRC). In one of their subjects, 0.5 mg of melatonin was effective while 20 mg was not.



Melatonin is available without prescription in the United States and Canada, while it is available only by prescription or not at all in some other countries. The hormone may be administered orally, as capsules, tablets or liquid, via sublingual or buccal strips, or as transdermal patches.