Melatonin Gummies

Strawberry Delight Flavor

Doctor's BEST®
Science-Based Nutrition™

INGREDIENTS

Melatonin is a hormone produced by the pineal gland and its primary function is to synchronize the internal hormonal environment to the light–dark cycle of the outside environment and control circadian rhythms.[1,2] Unfortunately, at night, artificial lighting such as light-emitting diodes (LED) continues to activate the brain, suppressing the natural release of Melatonin and potentially causing health problems.[3] Some of the effects of Melatonin are via its antioxidant effects,[4,5,6,7,8] cytoprotective, neuroprotective and cardioprotective.[5,6,7] Melatonin also enhances mitochondrial function, protects nuclear and mitochondrial DNA and regulates homeostasis.[9,10]

Antioxidant Properties of Melatonin

Melatonin is involved in the antioxidant defense system of humans and mammals, designed to protect molecules from damage by toxic oxygen radicals.[4,5,6,7,8] Melatonin is a potent free radical scavenger of the especially toxic hydroxyl radical and stimulates several endogenous antioxidant enzymes. Because it is both lipophilic and hydrophilic, Melatonin easily passes all physiological barriers; enters all cells and may carry out its antioxidant function with equal efficiency in multiple cellular compartments, i.e. in the nucleus, cytosol and the cell membranes.[4,5,6,7] Moreover, it is the only antioxidant known to decrease substantially after middle age, and this decrease closely correlates with a decrease in total antioxidant capacity of human blood serum with age.[7]

Melatonin and Sleep Regulation

There is a large growing body of data suggesting the involvement of melatonin in the physiological regulation of sleep.[9,10] The sleep-promoting effects of melatonin have been well known since first experiments in the early 1970's and is probably a consequence of increasing sleep propensity and of its synchronizing effect on the circadian clock. The number of reports on melatonin concentrations in sleep disorders is still rather low considering its use in helping regulate sleep. However, it has been clearly demonstrated that the timing of the sleep gate is correlated with the onset of nocturnal melatonin secretion. Melatonin helps decrease the recovery time from jet-lag.[11] Nocturnal melatonin concentrations are significantly lower in persons suffering from poor sleep quality.[12,13]

Immunoregulatory Effects of Melatonin

Melatonin may exert a direct influence on the immune system because melatonin membrane and nuclear receptors have been discovered in immune organs and cells of humans and other mammalian species.[14] Moreover, it was recently reported that cultured human lymphocytes synthesize and release large amount of melatonin which could act, in addition to its endocrine effect, as an intracrine, autocrine, and/or paracrine substance for the local coordination of the immune response.[15]

Melatonin and Aging

Aging is undoubtedly a complex multi-factorial process. The age-related decline in melatonin production may have health consequences including sleep inefficiency, circadian rhythm dysregulation, depressed immune function, reduced antioxidant protection, and possibly other effects.[16] Recent findings of Kunz et al. showed that exogenous melatonin, when administered at the appropriate time, seems to normalize circadian variation in human physiology, and therefore, melatonin may have an impact on general health, especially in the elderly.[17]

BENEFITS

- Melatonin is a potent antioxidant that passes all physiological barriers*
- Melatonin regulates sleep onset, sleep quality and duration of sleep*
- Supplementing with Melatonin offsets the age-related decline in Melatonin production*
- Melatonin regulates the immune system and supports healthy lymphocyte activity*
- Melatonin normalizes circadian rhythm and supports general good health*
- Melatonin supports faster recovery from jet lag*

Supplement Facts

Serving Size 2 Gummies
Servings Per Container 30

	Amount Per Serving	% Daily Value
Calories	15	
Total Carbohydrate	4 g	1%**
Total Sugars	3 g	†
Includes 3 g Added Sugars		6%**
Sodium	5 mg	<1%
Melatonin	5 mg	†

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

Other Ingredients: Glucose syrup, sugar, water, pectin, natural flavor, elderberry juice (for color), citric acid, sodium citrate, coconut oil, carnauba wax.

Suggested Adult Use: As a dietary supplement, chew two (2) gummies daily at bedtime, or as recommended by a nutritionally-informed physician. Chew thoroughly before swallowing.

WARNING: Not intended for pregnant, lactating, or individuals under the age of 18. If you have a medical condition or taking medications, consult your physician before taking this product. Do not use before or while operating a motor vehicle or heavy machinery.

KEEP OUT OF REACH OF CHILDREN

Store in a cool dry place.

* 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.

EXTENDED BENEFITS

Melatonin Regulates Our Circadian Sleep/ Wake Cycle

Melatonin has been proven to be useful in circadian rhythm disorders, regulates sleep onset, jet lag recovery, sleep-wake cycle disturbances and work shift changes. The toxicity of melatonin is remarkably low, and no serious negative side effects of melatonin have been reported in its usage in clinical trials or in its popular use as a supplement over the decades.*[1,20,21]

Melatonin is naturally produced in response to darkness. Persons subjected to changing sleep patterns due to work shift changes often have trouble maintaining healthy sleep patterns during daytime or nighttime. Melatonin plays an important role for rapid adjustment to new sleep schedules.*[22] In a human trial, the sleep patterns of 86 shift-work nurses were studied and the volunteers were given either melatonin or a placebo 30 minutes before sleep time. The results indicated that participants in the melatonin study group fell asleep an average of 16 minutes sooner. This group also displayed significantly increased sleep quality scores as measured by questionnaires completed immediately upon waking.*[23]

Melatonin use synchronizes the sleep-wake cycle in individuals with delayed sleep phase syndrome or jet lag.* Urinary 6-sulphatoxymelatonin is the biomarker used to measure melatonin levels which decrease with age beginning at 35 to 45 years. The effect of melatonin on sleep is probably the consequence of increasing sleep propensity probably by inducing a fall in body temperature and a synchronizing effect on the circadian clock.[24]

Melatonin Regulates the Immune System

One of the main features that distinguishes melatonin from classical hormones is its synthesis by numerous non-endocrine organs, including the immune system. The immune system-synthesized melatonin has a direct immunomodulatory effect on cytokine production. Melatonin regulates the levels of inflammatory cytokines.[18]

Human physiologic concentrations of melatonin stimulate and activate L3T4+ (CD4+) immune responder cells for an enhanced immune effect and a stronger immune response.*[19]

An important fact that also supports the relationship between melatonin and the immune system is the presence of melatonin receptors in a wide variety of organs and immune cells from humans and other mammals. Melatonin interacts with membrane and intracellular targets, and this interaction mediates important regulatory effects on the immune system.*[18,19]

Melatonin's Cell Protective Actions

Melatonin reduces oxidative stress and increases mitochondrial homeostasis.*[25] Melatonin controls electron flux by preventing bottlenecks in the respiratory chain, helps slow electron leakage and contributes to the avoidance of damage by free radicals for neuroprotection. Newly discovered influences on sirtuins and downstream factors indicate that melatonin has a role in mitochondrial biogenesis, the creation of new mitochondria.*[26]

Melatonin's Protective Role Against Free Radicals

Melatonin increases total antioxidant capacity[27] and reduces the production of reactive oxygen species (ROS) and reactive nitrogen species (RNS) and their damaging effects on body proteins, including DNA and the protection of cell membranes.*[28]

PHARMACOLOGICAL & CLINICAL STUDIES

Studies suggests melatonin may reduce the time it takes for people with delayed sleep (i.e., sleep is delayed by two or more hours beyond the conventional bedtime, causing difficulty in waking at a desired time) to fall asleep.*[29] Melatonin may also help re-set the body's sleep-wake cycle.*[30] Importantly, melatonin has been shown to serve as a mediator between the thermoregulatory and arousal system in humans, and administration of melatonin during the day can result in sleepiness in association with reduced core body temperature.*[31,32]

A study was conducted to see to test the hypotheses that a delayed weekend sleep pattern may lead to a delay of the circadian rhythm, and that melatonin administration can counteract the phase delay and prevent the sleep and functional impairments associated with this sleep pattern. A delayed weekend sleep pattern did show a mild phase-delay effect on the endogenous circadian rhythm after taking melatonin. A single dose of melatonin did reverse the weekend drift into a delayed weekend sleep pattern in this study.*[33]

Melatonin administration improved the ability to adapt to work phase shift and significantly improved a self-rated jet lag in numerous time zone travelers. Preliminary results in night shift workers showed improved daytime sleep and night-time alertness when given melatonin.*[34]

The effects of jet lag include reduced alertness, loss of appetite, poor mood, poor psychomotor coordination and reduced cognitive skills which are closely affected by both the length and direction of travel. When melatonin is taken at the destination, between 10 pm and midnight, it can correct the sleep disturbances, mental inefficiency, and daytime fatigue that occur after flights across several time zones.*[35,36]

Blood serum levels of melatonin were measured during the day and nighttime in 367 subjects (210 males and 157 females) in persons from 3 days old to 90 years old. Daytime serum melatonin levels were low, and no age-related alterations were found. The study revealed major age-related alterations in night time serum melatonin levels. The negative correlation between serum melatonin and body weight in childhood and adolescence demonstrated that the increase in body size is responsible for a large melatonin decrease during that growth period. The moderate decline at older ages is derived from other factors not discussed by the study authors.*[37]

Melatonin's antioxidant properties inhibit the accumulation of free radicals in the brain, thereby increasing neuronal health.* In the brain and other nervous system cells that produce the neurotransmitter acetylcholine, production is dependent upon the enzyme choline acetyltransferase. After synthesis, choline acetyltransferase is transported into synaptic vesicles to contribute to normal cognitive function. Research has shown that melatonin may partially prevent the blockage of both choline transport and choline acetyltransferase activity that frequently occurs, thereby supporting healthy brain function.*[38]

Clinical trials suggest that supplementation with melatonin may lengthen the time spent sleeping by avoiding the brain's misinterpretation that low melatonin levels act as a signal to awaken. A meta-analysis of studies on certain segments of the population noted that melatonin increased the average time that some research subjects spent sleeping by fifty minutes. Furthermore, this meta-analysis found that melatonin supplementation significantly decreased the number of times subjects awoke during the night and that the subjects lag time to fall asleep was reduced by an average of 34 minutes less.*[39]

SCIENTIFIC REFERENCES

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