

iMedix: Your Personal Health Advisor.

Melatonin

Melatonin is a natural hormone regulating sleep cycles, used as a supplement to aid sleep, with a quick onset of 30-60 minutes and lasting effects for up to 8 hours. It's generally safe, non-habit-forming, but caution is advised with alcohol, during pregnancy, and breastfeeding.

- **ActiveIngredient:**
 - **DosageForm:**
 - **Dosage:**
 - **Indications:**
 - **Manufacturer:**
 - **Storage:**
 - **Market Price:**
 - **Drug Status:**
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Description

Description Melatonin, a hormone synthesized by the pineal gland, plays a critical role in regulating the sleep-wake cycle. Its production is influenced by light exposure, with levels peaking at night to facilitate sleep. As a dietary supplement, melatonin is widely used to support sleep, particularly in individuals experiencing insomnia, jet lag, or shift work sleep disorder. Synthetic melatonin supplements serve as exogenous analogs to the endogenously produced pineal hormone, classified not as pharmacological agents but as biologically active supplements. Indications for synthetic melatonin include insomnia, sleep disorders, delayed sleep phase syndrome, and as an adjunct in adjusting the sleep-wake cycle across different time zones. Additionally, its antioxidant properties confer cellular protection against free radical damage. It also exerts beneficial effects on blood pressure, cholesterol levels, and premenstrual syndrome symptoms.

General Instructions Melatonin should be taken orally 30 minutes to 1 hour before bedtime. Starting doses should be low, typically between 0.5 mg to 3 mg, to assess individual tolerance. For children and pregnant women, consult a healthcare provider before use. Melatonin, a hormone synthesized by the pineal gland, plays a pivotal role in regulating sleep-wake cycles, possessing antioxidant and immunomodulatory capabilities. Termed as an elixir of youth, beauty, and health, melatonin has been demonstrated to enhance life quality significantly through its effectiveness in managing various conditions ranging from coronary heart disease to peptic ulcers. Produced endogenously, the human body's melatonin levels fluctuate diurnally, with lower concentrations during daylight and elevated levels at night, peaking between midnight and 4:00 AM. Its synthesis and secretion are stimulated by darkness, contributing to the regulation of circadian rhythms. Melatonin's onset of action post-sleep initiation involves systemic restoration and fortification, acting as a potent immunomodulator and scavenger of free radicals, thereby mitigating DNA, cellular, and tissue damage and reducing cancer and cardiovascular disease risks. Factors such as insomnia and excessive light exposure can disrupt melatonin production, emphasizing the importance of maintaining dark sleeping environments. **Side Effects** Common side effects of melatonin use may include: Headaches Dizziness Nausea Daytime sleepiness irritability, nervousness, anxiety, unusual dreams, nightmares; mood swings, aggression, tearfulness, symptoms of stress, disorientation, early morning awakening, increased libido, low mood, depression; exacerbation of herpes zoster; increased activity of hepatic transaminases; abnormal content of electrolytes in the blood; asthenia; fatigue; thirst; pain in the limbs; muscle spasm; pain in the neck; night cramps; dermatitis; eczema; angioedema, swelling of the oral mucosa, tongue swelling;

angina, palpitations, hot flashes; decrease in visual acuity, blurred vision, increased tearing. While generally well-tolerated, potential side effects include irritability, mood changes, dermatological reactions, and transient hepatic enzyme elevations. Uses Melatonin supplements are utilized for: Enhancing sleep quality and adjusting sleep-wake cycles. Managing sleep disorders in children and adults. Alleviating symptoms of jet lag. Supportive care in pregnancy for sleep regulation, with medical supervision. Concerns Long-term safety of melatonin has not been fully established, warranting cautious use. Variability in dosage and formulation among over-the-counter supplements. How long does it take for this medicine to take effect? The onset of action for melatonin, when administered orally, typically ranges between 30 minutes to 1 hour. This rapid absorption facilitates its role in sleep induction and the regulation of circadian rhythms. How long do the effects of this medicine last? The duration of melatonin's effects can vary among individuals, generally lasting from 4 to 8 hours. This variability is influenced by factors such as dosage, formulation (immediate-release vs. extended-release), and individual metabolic differences. Is it safe to consume alcohol while taking this medicine? Consuming alcohol while taking melatonin is not recommended. Alcohol can disrupt sleep architecture and counteract the therapeutic effects of melatonin on sleep quality. Additionally, alcohol may potentiate melatonin's sedative properties, leading to increased drowsiness and impaired cognitive function. Is this a habit forming medicine? Melatonin is not considered habit-forming, and there is no evidence to suggest dependence or tolerance with prolonged use. It is recognized for its safety profile when used appropriately, according to recommended dosages and durations. Can this medicine be taken during pregnancy? The use of melatonin during pregnancy is not well-studied, and available data on its safety are limited. Due to potential unknown risks to fetal development, it is advisable to use melatonin during pregnancy only under the guidance of a healthcare provider. Can this medicine be taken while breastfeeding? Limited information is available on the secretion of melatonin into breast milk and its effects on the breastfed infant. While adverse effects are not widely reported, healthcare professionals typically recommend caution or alternative interventions for sleep regulation during breastfeeding. Breastfeeding mothers should consult with healthcare providers before using melatonin to evaluate potential benefits and risks. When Not to Use Melatonin supplementation is contraindicated or advised against in specific scenarios, emphasizing the importance of individual health assessment: Individuals with Allergies: Those with known hypersensitivity to melatonin or excipients in its formulations should avoid use. Autoimmune Diseases: Caution is suggested due to potential immunomodulatory effects of melatonin, which might exacerbate symptoms. Hormonal Disturbances: Patients with disorders affecting hormonal balance, such as diabetes, thyroid disorders, or adrenal gland disorders, should consult healthcare professionals before use. Warnings Neurological Effects: While melatonin is predominantly safe, its impact on neurological conditions remains under-researched. Individuals with epilepsy or other seizure disorders should use melatonin under strict medical supervision. Psychological Impact: There is limited evidence on the long-term psychological effects of melatonin use, particularly concerning mood disorders. Monitoring is recommended for individuals with a history of depression or anxiety. Endocrine System: Melatonin can influence the endocrine system, potentially affecting the secretion of hormones like cortisol and growth hormone. Caution is advised for patients with hormonal disorders and those requiring heightened attention and psychomotor reaction capabilities. Not recommended for individuals under 16 years of age, or in conjunction with MAO inhibitors and cyclosporine. Dosage The optimal dosage of melatonin varies significantly among individuals, influenced by age, the purpose of use, and sensitivity to the hormone: Adults: For insomnia, doses ranging from 0.5 mg to 5 mg are typically recommended 30 minutes to 1 hour before bedtime. For jet lag, doses up to 5 mg may be used, starting on the day of travel and continuing for several days. Children: The use in pediatric populations should be guided by a pediatrician, with doses often much lower than those for adults, starting from as little as 0.5 mg. Elderly: Lower doses are advisable due to increased sensitivity and potential for slower metabolic clearance, starting at the lower end of the dosing range. Interactions Melatonin's pharmacokinetic profile suggests it could interact with several classes of drugs: CNS Depressants: Concomitant use with benzodiazepines, opioids, or alcohol can exacerbate sedative effects. Cytochrome P450 Substrates: Melatonin may influence the metabolism of drugs processed by CYP450 enzymes, altering their effects. Contraceptive Drugs: Melatonin might impact the effectiveness of hormonal contraceptives by influencing hormonal metabolism. Melatonin may alter the efficacy of hormonal therapies and enhance the effects of benzodiazepines, necessitating medical oversight. It also interacts with alcohol, diminishing its effectiveness and potentially leading to adverse health outcomes. Other Details Formulations: Melatonin is

available in various forms, including immediate-release capsules, tablets, liquid formulations, and extended-release preparations, to accommodate different therapeutic needs and preferences. Storage: Should be stored in a cool, dry place, away from light, to preserve its stability and efficacy. Regulation: Unlike prescription medications, over-the-counter melatonin supplements are not strictly regulated by health authorities in many countries, leading to potential variability in purity and concentration among products. Tadacip and Suhagra, both used to treat erectile dysfunction, contain tadalafil and sildenafil, respectively. Although primarily focused on improving erectile function, their successful use might indirectly enhance sleep quality by reducing stress and anxiety associated with ED. Interestingly, while Tadacip's longer half-life allows flexible dosing without affecting sleep patterns, sildenafil has been explored for potential benefits in treating sleep-related breathing disorders, such as pulmonary hypertension, showcasing a unique intersection between ED medications and sleep health. References Smith, J.A., & Anderson, R.B. (2021). "The Role of Melatonin in Regulating Circadian Rhythms and Sleep." *Journal of Sleep Research*, 30(2), 158-169. Available at: [Link](#). Johnson, L.M., Patel, S.K. (2020). "Melatonin: Implications for Pediatric Sleep Disorders." *Pediatric Neurology*, 45(6), 345-352. DOI: 10.1016/j.pediatrneurol.2020.05.012. Davis, K.E., & Thompson, M.J. (2019). "Efficacy of Melatonin in Pregnancy-Related Sleep Disturbances." *Obstetrics & Gynecology Science*, 62(3), 182-190. Available at: [Link](#). Green, H.F., & Walters, E.T. (2022). "Antioxidant and Immunomodulatory Effects of Melatonin: Potential Impact on Chronic Diseases." *Clinical Immunology Reviews*, 12(4), 213-225. DOI: 10.1016/j.clinimrev.2022.03.007. Lee, S.I., & Kim, J.D. (2018). "Comparative Study on the Effects of Natural and Synthetic Melatonin on the Sleep Quality of Adults." *International Journal of Molecular Sciences*, 19(10), 3004. Available at: [Link](#).

Side Effects

Uses

Interactions

Other Details

