

Support for Restful Sleep

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Physiology and Function of Sleep

Sleep is a complex and dynamic process that is essential for human health. While sleep may appear passive, studies have uncovered complex functions that occur during the nightly sleep cycle.

A key function of sleep appears to be related to the activation of the glymphatic system, which is the central nervous system analog of the lymphatic system. The glymphatic system uses perivascular channels to clear neurotoxic waste products produced during wakefulness and provides the brain with glucose, lipids, and neuromodulators.¹ It also appears to play a role in brain immunity. Glymphatic flow increases dramatically during sleep and appears to be optimized during the N3 sleep stage, also known as slow-wave sleep.²

Hormones are intricately involved in sleep regulation. Melatonin is secreted by the pineal gland in response to darkness and plays an important role in the sleep-wake cycle. The stress hormone cortisol should be at its lowest in the evening to promote sleep onset. Growth hormone and the appetite-regulating hormones ghrelin and leptin are also closely associated with the sleep-wake cycle.

Insufficient sleep and poor-quality sleep are associated with a range of potential health challenges related to cardiovascular, endocrine, metabolic, and immune system function.²

Supportive Lifestyle Practices

- To support low cortisol levels and sleep onset, encourage patients to develop a consistent and relaxing bedtime routine. Evening activities that may support sleep include gentle stretching or yoga, a warm bath, reading, meditation, and prayer.

- Limit screen time (computer, phone, television) before bed. Screens emit blue light which can disrupt melatonin secretion and has been found to harm cognitive performance levels, alertness, and circadian physiology.³
- Advise patients to get 7-9 hours of sleep per night for optimal health.⁴ Sleeping less than 7 hours per night is associated with adverse health outcomes. Sleeping more than 9 hours per night can be appropriate for young adults, those recovering from sleep debt, and patients who are ill or convalescing.⁴
- Counsel patients to exercise no later than early evening. Physical activity can support overall sleep quality but vigorous exercise too close to bedtime may disrupt sleep onset.⁵ Hormones that promote wakefulness such as epinephrine, norepinephrine, and cortisol can be stimulated by exercise.⁵

Whole Foods Nutritional Recommendations

- Recommend intake of foods high in the amino acid tryptophan which can support favorable sleep outcomes via conversion to 5-HTP, melatonin, and serotonin. Tryptophan is found in animal products such as beef, lamb, poultry, and dairy, as well as in whole grains, legumes, nuts, and seeds.⁶
- Ensure sufficient dietary intake of magnesium, which is a sleep-supportive mineral found in foods like nuts, seeds, legumes, whole-grain cereals, and vegetables. Magnesium promotes sleep by binding GABA receptors, promoting melatonin production, and activating the parasympathetic nervous system. Magnesium from buckwheat and Swiss chard has been shown to elevate levels of magnesium in the brain.⁷
- Encourage consumption of foods high in melatonin such as tart cherry, eggs, fish, tomato, and nuts like pistachios, almonds, and walnuts.⁸

Dietary Supplement Regimen



E-Z Mg™

Suggested Use: **6 tablets per day**

E-Z Mg™ is a plant-based, organic magnesium (Mg) supplement developed to support patients with inadequate dietary magnesium intake.*

- Consists of a blend of forms of naturally occurring magnesium
- Magnesium is involved in pathways that support brain homeostatic sleep processes*



Valerian Complex

Suggested Use: **1 tablet 2-4 times daily**

Valerian root, Passion Flower, and Jujube seed have been traditionally used in herbal preparations to:

- Relieve mild nervous tension*
- Obtain relief from occasional sleeplessness*
- Promote relaxation*
- Ease the effects of temporary or occasional stress*



Kava Forte

Suggested Use: **1 tablet 2-3 times daily**

The compounds in Kava Forte, particularly the kavalactones, work together to traditionally help:

- Ease the effects of temporary nervous tension and stress*
- Promote relaxation and sleep*
- Support muscle relaxation*



Skullcap 1:2

Suggested Use: **Dilute 5 mL in water or juice once per day**

Skullcap has been traditionally used in herbal preparations to:

- Support nervous system health*
- Promote relaxation and encourage sleep*
- Relax and soothe temporary tension associated with the menstrual cycle*

Sleep Assessment

In Office/Physical Exam

- Lab studies: complete blood count, thyroid panel, cortisol (blood, urine, saliva), iron panel with ferritin
- Track day and nighttime heart rate and heart rate variability (HRV)

- Pittsburgh Sleep Quality Index (PSQI) Questionnaire
- Sleep study (polysomnography)
- Have the patient keep a sleep journal and/or use a digital sleep-tracking tool

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