

# NUTRITIONAL CONSIDERATIONS FOR SLEEP

**Sleep is one of the most powerful recovery tools available.** Yet, many people struggle to achieve sufficient, high-quality sleep. Let's explore some nutritional strategies that can enhance sleep and, in turn, optimize athletic recovery.



## Meal Timing

The timing of certain foods can influence your sleep, affecting how quickly you fall asleep and reducing potential disturbances.

<b>Evening Protein Consumption</b>	Ingesting protein sources high in <b>tryptophan</b> during the evening may promote and maintain sleep, especially during periods when sleep is typically disturbed (1).
<b>High GI Carbohydrates Post Evening Workouts</b>	Consuming high-GI carbohydrates immediately after evening exercise may enhance sleep by reducing the time it takes to fall asleep and improving sleep efficiency (1).

**\*High glycemic index (GI) carbs** quickly raise blood sugar levels and include foods like white bread, rice, potatoes, sugary snacks, and certain fruits (e.g., watermelon, pineapple). Consuming them after evening exercise may aid sleep by replenishing glycogen and boosting serotonin.

**Protein sources** that may improve sleep are typically rich in **tryptophan**, an amino acid that promotes serotonin and melatonin production, which are essential for sleep regulation. Examples include:

1. **Turkey**
2. **Chicken**
3. **Eggs**
4. **Dairy products** (e.g., milk, yogurt, and cottage cheese)

5. **Fish** (especially fatty fish like salmon, which also contains vitamin D and omega-3 fatty acids that support sleep)
6. **Nuts and seeds** (e.g., almonds, walnuts, and pumpkin seeds)
7. **Soy-based products** (e.g., tofu and edamame).

<b>Sample High Protein Dessert</b>	<b>Greek yogurt + pomegranate seeds + dark chocolate mini chips + pumpkin seeds + top with whip cream</b>
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## Functional Foods

Use food to your advantage! There is evidence to support the use of functional foods to improve sleep quality. Remember, to always use third-party tested supplement brands if choosing to take a supplement.

What functional foods are:	What functional foods aren't:
<p><b>Functional foods</b> are foods that provide <b>health benefits beyond basic nutrition</b>. These foods contain bioactive compounds –like vitamins, minerals, fiber, probiotics, or antioxidants–that can help prevent disease, improve overall health, or enhance performance.</p>	<p>Functional foods offer health benefits but are <b>not a substitute for medical advice or medications</b>. They support general health, but they don't treat specific conditions or replace prescribed treatments. Functional foods can complement medical care, but their effects vary between individuals, and not all claims are scientifically proven.</p>

**Tart Cherry Juice Concentrate:** The benefits of tart cherry juice are largely attributed to its high polyphenol content, particularly anthocyanins, which have strong antioxidant and anti-inflammatory effects. Tart cherry juice may enhance sleep by boosting melatonin levels, as tart cherries are a notable source of melatonin. Additionally, they appear to increase the availability of tryptophan, an amino acid that the body uses to produce melatonin.

- a. **Dosage:** The most common dosage for tart cherry juice concentrate is 30 mL, consumed twice per day (60 mL total). The most common dosages for tart cherry juice are 237 mL or 355 mL, consumed twice per day (474–710 mL total) (2).
- b. **Timing:** 1-2 hours before bed

*\*Note that Tart Cherry Juice is also known as:*

- *Montmorency Cherry Juice*

*\*Tart Cherry Juice should not be confused with:*

- *Cherry Juice*

**Magnesium-rich foods or magnesium glycinate supplement:** Magnesium plays a key role in sleep by helping to regulate neurotransmitters involved in relaxation, such as gamma-

aminobutyric acid (GABA). It also helps maintain healthy levels of the hormone melatonin, which regulates the sleep-wake cycle.

- a. **Foods:** pumpkin seeds, chia seeds, black beans, edamame, flaxseeds, kidney beans, quinoa, avocado, banana, almonds, brown rice, cooked spinach.
- b. **Magnesium Glycinate:** Magnesium glycinate is highly bioavailable, meaning it's easily absorbed by the body. It is also gentle on the digestive system and less likely to cause diarrhea compared to other forms of magnesium. This form is known for promoting relaxation and improving sleep quality.
  - i. For magnesium, the tolerable upper intake level (UL), the maximum daily intake that probably won't cause side effects, is 350 mg per day. (3)

**Melatonin-rich foods or supplementation:** Melatonin helps regulate the sleep-wake cycle by signaling to the body that it's time to sleep. Produced in response to darkness, it promotes sleepiness and reduces alertness. Supplementing with melatonin can help reset the body's internal clock and improve sleep, particularly for jet lag or insomnia.

- a. **Foods:** grapes, bananas, and tomatoes, tart cherries, pineapple, oranges, oats, almonds, walnuts, and ginger.
- b. **Supplement:** 2-5mg/night 3 hours prior to bed (4)

Other supplements studied for insomnia: [valerian](#) root, kava-kava, [chamomile](#), and [lavender](#).

## Additional Supplements

**Certain supplements can help aid in improving sleep quality.** Be sure to carefully evaluate the risks of taking any supplement and consult with your healthcare provider before adding one to your daily routine. This is particularly important for athletes in the drug testing pool and individuals taking specific medications.

**Ashwagandha**- to help reduce cortisol levels, anxiety, and stress. This can be taken at night to help keep the cortisol down. Taken daily is recommended.

**L-theanine** – an amino acid that when supplemented may help reduce stress and anxiety during acutely stressful situations. Can take as needed at bedtime.

**GABA** – is an amino acid that functions as a neurotransmitter to calm the brain. This can be helpful for those with spinning minds, anxiety and to relax, this can also be used as needed at bedtime. This is not the prescription gabapentin, it's a supplement called GABA.

**Glycine**- can aid in muscle relaxation and quell an overstimulated brain state to reduce stress. Glycine is found in high-protein foods- bone broth and gelatin being the most notable. Supplementation is also available

Other supplements studied for insomnia: **valerian root** (promotes relaxation and reduces anxiety by interacting with GABA [gamma-aminobutyric acid] and low levels of GABA are linked to acute and chronic stress), **kava- kava, chamomile, and lavender.**

*Note: the impact of these nutrients on one's sleep will vary from individual to individual if at all.*

# Antagonist

Lastly, keep in mind the food, non-food, and environmental components that can be working against your natural sleep cycle.

<b>Alcohol &amp; Caffeine</b>	<b>Spicy foods, high fat/heavy meals, and sugary drinks</b>	<b>Poor or lack of sleep routine and environment.</b>
<p>Research shows that <b>alcohol</b> can lead to fragmented sleep and reduced REM sleep, affecting overall sleep quality.</p> <p>Consuming <b>caffeine</b> in the evening (after 5 p.m.) at doses exceeding 2 mg per kilogram of body mass can negatively affect sleep.</p> <p>Specifically, it decreases sleep duration and efficiency, while increasing the time it takes to fall asleep and the amount of wakefulness after sleep onset. (5)</p>	<ul style="list-style-type: none"> <li>● <b>Spicy foods</b> can cause indigestion or acid reflux, particularly when consumed before bed, leading to discomfort and disturbed sleep.</li> <li>● <b>Fatty foods</b> also take longer to digest, which can disturb sleep.</li> <li>● <b>High sugar</b> intake can cause fluctuations in blood sugar levels, leading to sleep disturbances. It may also increase the production of insulin and cortisol, both of which can interfere with sleep.</li> </ul>	<ul style="list-style-type: none"> <li>● Irregular Sleep Schedule</li> <li>● Inadequate Sleep Duration</li> <li>● Excessive Screen Time Before Bed</li> <li>● Uncomfortable Sleep Environment</li> <li>● Poor Sleep Hygiene</li> <li>● Stress and Anxiety</li> <li>● Light Exposure</li> </ul>

**Additional Guidance for Caffeine:**

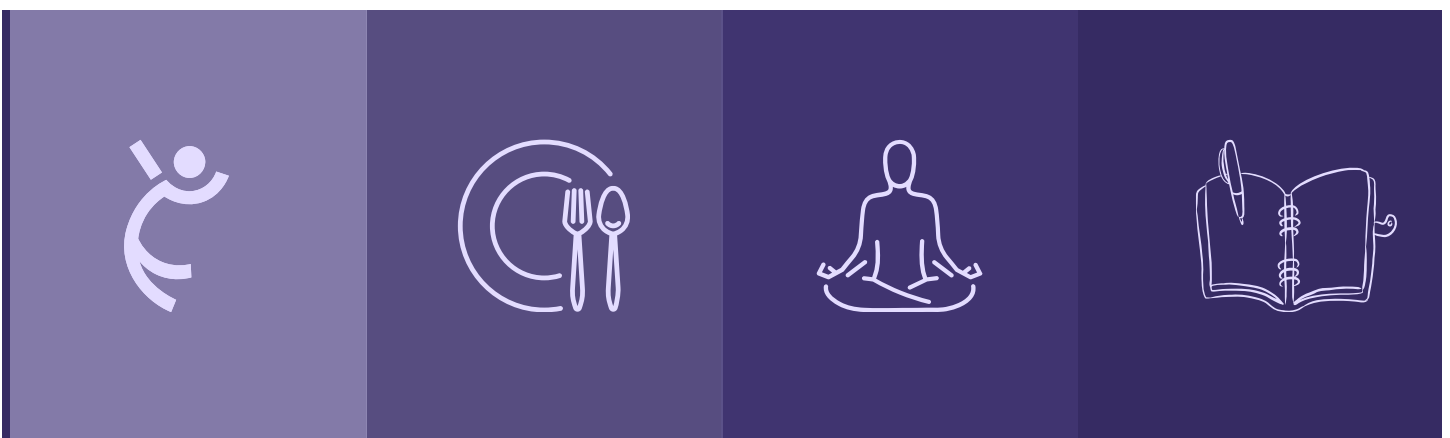
1. Limit caffeine intake in the afternoon and evening: Avoid consuming caffeine at least 6–8 hours before bedtime, as its stimulating effects can last for several hours.
2. Keep caffeine intake moderate: The general recommendation is no more than 200-300 mg per day (about 2–3 cups of coffee) for most adults to avoid sleep disturbances.
3. Be mindful of individual sensitivity: Some people are more sensitive to caffeine and may need to stop consuming it earlier in the day or reduce their overall intake.
4. Be aware of hidden sources of caffeine: teas, sodas, energy drinks, and pre-workout supplements.



## Don't Discredit the Basics

Physical Activity	Balance Diet	Stress-relief & self-care
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Remember, nutritional strategies for better sleep work best when paired with a holistic approach. Prioritize daily physical activity, eat a well-balanced diet, and manage stress through mindfulness or relaxation techniques. Establishing a consistent sleep routine and optimizing your sleep environment—such as keeping it cool, dark, and quiet—can have the greatest impact. By addressing these key areas, you can create the foundation for restorative, high-quality sleep.



### Resources

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