

Focus On Subspecialties

Sweet dreams

Thinking about sleep should not keep you up at night

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A good night's sleep should be the goal for all children as they go to bed in the evening.

Adopting five fundamental healthy habits will lead to successful and healthy sleep for most children. For some individuals, however, sleep issues will persist no matter how much attention is placed on healthy habits. In these cases, pharmacologic intervention might be necessary.

Rule of five

Sleep is discussed in nearly every pediatric health maintenance visit and is an endless topic of conversation for parents. Yet sleep gets relatively little attention in medical school and pediatric residency training.

When thinking about sleep and how to address sleep problems, it is best to start with a holistic survey of the patient. Five fundamental healthy habits lead to successful and healthy sleep: food, fitness, friendship with self, friendship with others and fields (sleep environment).

- **Food:** Children should avoid heavy meals late in the day and consumption of caffeine within eight hours of bedtime. Consider adding a bedtime snack. Food should include protein, which contains the amino acid tryptophan, the precursor to making serotonin and melatonin. In addition, inadequate vitamin and mineral intake limits the supply of necessary co-factors to make melatonin, so make sure there is enough magnesium, iron and B vitamins in the diet.

- **Fitness:** Encourage 30-60 minutes of vigorous exercise a day, but discourage exercising within two hours of sleep.

- **Friendship with self and others:** Stress and other negative emotions such as being sad or mad make it hard to sleep. Biofeedback, meditation, supportive relationships, practicing compassion and volunteering help mitigate stress and promote mental well-being.

- **Fields:** The sleep area should be dark, cool and comfortable. The room should be orderly with quiet natural sounds (e.g., waterfall, crickets chirping, rain on the roof, gentle wind chimes, etc.) Soft, relaxing music (not dance) also can be helpful. There should be no TV in the bedroom. Aromatherapy with lavender or chamomile can be calming and soothing.



The five Fs for healthy sleep habits — food, fitness, friendship with self, friendship with others and fields (sleep environment) — should be in place before considering pharmacologic interventions for children with sleep problems.

In addition, bedtime should be at the same time each night. There could be a warm bath or a massage before going to bed.

Pharmacologic interventions

For some individuals, sleep issues will persist no matter how much attention is placed on a holistic approach.

When addressing sleep disorders in patients, medication rarely is a first or sole choice. When medication is warranted, it should match the clinical situation. Use short-acting medications to decrease the latency of sleep onset and longer-acting agents for sleep maintenance. The chosen drug should be initiated

at the lowest dose and titrated as needed.

Treatment goals should be realistic, clearly defined, measurable and agreed upon by caregivers. In addition, there should be a plan for follow-up.

Three classes of prescription drugs have been approved for the treatment of sleep disorders in adults: melatonin receptor agonists and the benzodiazepine and non-benzodiazepine gamma-aminobutyric acid (GABA) receptor agonists. No drug has a pediatric indication for sleep disorder.

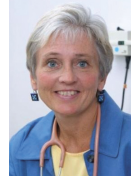
One of the most widely used over-the-counter drugs for sleep is melatonin, which has both hypnotic and chronobiotic properties. Melatonin has minimal impact on sleep architecture. It generally is well-tolerated and dosed at 0.5 milligrams (mg) for chronobiotic effect and 2.5-3 mg for children and 5 mg for adolescents for a hypnotic effect. In clinical trials of pediatric patients with attention-deficit/hyperactivity disorder (ADHD), melatonin has been shown to shorten the latency period to sleep onset and increase the duration of sleep.

Clonidine, an alpha agonist, is widely used in pediatric populations to decrease the time to sleep onset. Several case series in patients with ADHD demonstrate effective shortening of sleep onset latency. But this prescription drug comes with the possibility of hypotension, bradycardia and rebound hypertension. The dose should not exceed 0.3 mg.

Many other medication classes may play an occasional role in helping to obtain or maintain sleep. These include the benzodiazepine and non-benzodiazepine GABAA receptor agonists, tricyclic and atypical antidepressants, antihistamines, mood stabilizers and antipsychotic medications. The use of any of these agents should include a discussion of the risks vs. benefits and a listing of potential side effects for the family.



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Drs. Kemper and Owens were faculty for the AAP Section on Clinical Pharmacology and Therapeutics' program on Drugs and Alternate Therapies for Children with Sleep Disorders at the 2010 AAP National Conference & Exhibition.