ADHD or Sleep Disturbance?
Sleep Hygiene: The non-drug intervention

"Sleep deprivation can cause daytime hyperactivity and decrease in focused attention. This can be mistaken for Attention Deficit Hyperactivity Disorder (ADHD) or other behavior disorders." - National Institutes of Health

We all know that lack of sleep can cause us to be drowsy, perform poorly at work, and be dangerous behind the wheel of a car. Ongoing sleepiness has more serious consequences. In children it increases the risk of accidents and injuries. In addition, lack of sleep can have a negative effect on children's performance in school, on the playground, in extracurricular activities, and in social relationships.

Inadequate sleep causes decreases in:

- *Performance*
- *Concentration*
- *Reaction Times*
- *Consolidation of Information*

Inadequate sleep causes increases in:

- *Memory Lapses*
- *Accidents and Injuries*
- *Behavior Problems*
- *Mood Problems, including irritability*

Do these problems, or "symptoms", sound familiar? They should if you are familiar with ADHD because many of these "symptoms" are central to the diagnosis of ADHD in children. What does this mean? Well, frankly it means that looking at the sleep pattern of a child or adolescent should always be a part of any diagnostic workup for ADHD, anxiety, behavior problems, or mood disturbance. All too often sleep is not even considered during the evaluation. If sleep is considered during the evaluation it is often the case that sleep problems are seen as secondary to ADHD when in fact they may be the cause of all or nearly all of the "symptoms of ADHD" being seen in the child. It is even possible that the medication being used to treat the ADHD may be causing the sleep disturbance.

Pediatricians frequently recommend various prescription and over-the-counter sleep aids to young insomniacs, a new survey has found. However, there is no medication approved by the FDA for use in children with sleep problems. The May 2003 issue of *Pediatrics* has an article in which 671 pediatricians were surveyed about when, what and why they prescribed or recommended prescription or over-the-counter sleep aids for children and adolescents. More than half of the pediatricians surveyed had prescribed sleeping pills to children at least once in the last six months. Seventy-five percent had recommended a nonprescription sleep aid, such as the antihistamine Benadryl. Nearly 25 percent recommended melatonin or other herbal remedy, such as chamomile teas and valerian root. About 55 percent of physicians said they prescribed medicine to treat sleep problems in children to "provide the family with needed respite." About 52 percent said they used the medications in "special needs" children, and 50 percent said they prescribed the medicines "in combination with behavioral treatments."

The article also reports that the use of medication to treat pediatric insomnia fell into two broad categories. The first was short-term use of over-the-counter medications for specific situations, such as travel, acute pain or stress. The second was longer-term, prescribed medicines for children with special needs, including mental retardation, autism and attention-deficit hyperactivity disorder (ADHD). The most commonly used over-the-counter medicines were antihistamines. The active ingredient is diphenhydramine, which is the same active ingredient in other over-the-counter sleep aids such as Tylenol PM. "If parents don't know it, they could get into a situation where they are overdosing a kid," says the lead author, Dr. Judith Owens, an Associate Professor or Pediatrics at Brown Medical School. The most commonly prescribed sleeping pills were alpha-agonists. One brand name is Calapres, a hypertension drug for adults that has sedating properties. Another is Tenex, used as a sedative in kids with ADHD. The second author of the study, Dr. Stephen Sheldon, is the medical director of the Sleep Medicine Center at Children's Memorial Hospital in Chicago.

These findings do not say drugs are never appropriate. However, the consensus among sleep researchers is that they should not be used before doing a full assessment of the cause of the wakefulness. There is also a non-chemical alternative to medication for sleep problems. In many cases, it is poor "sleep hygiene" that is the cause and changing bedtime practices in order encourage a restful night's sleep may be the answer. Such changes can increase the amount of sleep a child receives as well as increase the quality of the sleep.

Can it really make a difference whether your child gets an hour more or an hour less of sleep at night? Researchers at Tel Aviv University enlisted seventy-seven 4th and 6th graders to either go to bed an hour earlier or an hour later than they usually do. After three consecutive nights of either increased or decreased sleep the students then completed tests to assess how well they are likely to perform in the classroom. Those students who got an hour of extra sleep performed better on tests of memory, attention, and reaction time. And those children getting an hour's less sleep reported more fatigue late in the day than the group that went to bed early. Again, sound familiar?

The first question many parents ask is: How much sleep does my child need? Different kids seem to need different amounts of sleep, but these needs seem to be constant over time. Whether an individual is rested after a night's sleep depends not only on the quantity of their sleep, but also its quality. Restless, interrupted sleep is not as efficient as quiet, uninterrupted sleep. Studies in the sleep laboratory suggest that, on average, school-age children need about 9.5 hours of sleep a night in order to wake spontaneously the next morning and feel fully rested. How many hours do most children of school-age actually get a night? My own findings from interviewing children as part of my evaluation process indicates that elementary age children are averaging 7.5 hours per night for a variety of reasons.

Another factor to take into consideration is that sleep deprivation is cumulative. Children who are not getting enough sleep will incur an increasing "sleep debt" over time, causing them to perform less well and feel more sleepy with each succeeding day of insufficient sleep. Parents should look for some of the following signs that their children's sleep may be insufficient either in quantity or quality:

- Your child does not wake up spontaneously in the morning, but must be awakened, sometimes with great difficulty.
- Your child often has a rushed or missed breakfast in the morning because he or she frequently oversleeps.
- Your child appears sleepy during the day either to the teacher, to you, or to both. Some sleep-deprived children fall asleep in school, particularly when they are bored.
- You or the teachers note that your child is having trouble concentrating on work or finishing tasks.
- Your child seems irritable, particularly late in the day. This may also be reflected in behavior problems and unexpectedly poor academic performance.
- Your child falls asleep after coming home from school in the afternoon.
- Your child sleeps much longer and later on weekends than during the week (repaying an accumulated "sleep debt").

Some of the steps that you can take to help your child be at their best during the day include keeping a sleep diary and implementing some basic sleep hygiene changes to foster better, more restful and productive sleep in your child. You can better define whether your child is getting adequate sleep by keeping a sleep diary for one or two weeks, noting the times your child goes to bed and awakens, and whether waking is spontaneous. The diary should also record observations of daytime sleepiness, irritability, ability to concentration, and performance of schoolwork. In addition watching your child sleep at random times through the night may also be revealing. Record these observations in the sleep diary as well. Restless and fitful sleep may suggest poor sleep quality. This can sometimes be caused by upper airway problems that may need the attention of the pediatrician. In the extreme, some of these children will exhibit sleep apnea, usually accompanied by loud snoring and chest movements that are irregular and labored. If this is the case contact your pediatrician immediately and inquire about a sleep study to determine exactly what is going on and how best to treat your child. In other instances, restless sleep may be the result of medications that the child is taking. In any event, the sleep diary should be shared with your child's pediatrician, who may be helpful if you are seeing daytime symptoms of sleepiness, poor performance, or deteriorating behavior that you suspect may be due to a sleep problem.

What is sleep hygiene? Sleep hygiene is the development and following of behaviors surrounding bedtime and sleep that increase the likelihood of a person getting more productive and restful sleep more consistently. The goal is to have normal, quality nighttime sleep and full daytime alertness. The most important component of sleep hygiene is to maintain

a regular sleep and wake pattern seven days a week. The U.S. National Institutes of Health suggest some important things you can do to ensure that your child gets enough sleep:

- Set a regular time for bed each night and stick to it.
- Establish a relaxing bedtime routine, such as giving your child a warm bath or reading him or her a story.
- Make after-dinner playtime a relaxing time. Too much activity close to bedtime can keep children awake.
- Avoid feeding children big meals close to bedtime.
- Avoid giving children anything with caffeine less than six hours before bedtime.
- Set the bedroom temperature so that it's comfortable – not too warm and not too cold.
- Make sure the bedroom is dark. If necessary, use a small nightlight.
- Keep the noise level low.

Dr. Michael Thorpy, MD, the director of the Sleep-Wake Disorders Center Montefiore Medical Center in Bronx, New York, suggests that good sleep hygiene practices also include:

- Avoid napping during the day; it can disturb the normal pattern of sleep and wakefulness.
- Exercise can promote good sleep. Vigorous exercise should be taken in the morning or late afternoon. A relaxing exercise can be done before bed to help initiate a restful night's sleep.
- Food can be disruptive right before sleep; stay away from large meals close to bedtime. Also dietary changes can cause sleep problems, if someone is struggling with a sleep problem, it's not a good time to start experimenting with spicy dishes. And, remember, chocolate has caffeine.
- Ensure adequate exposure to natural light. Light exposure helps maintain a healthy sleep-wake cycle.
- Try to avoid emotionally upsetting conversations and activities before trying to go to sleep. Don't dwell on, or bring your problems to bed.
- Associate bed with sleep. It's not a good idea to use the bed to watch TV, listen to the radio, or read.

In addition it may be useful to review with your child’s physician whether there are any medicines (such as some asthma medicines and decongestants) that may be interfering with the quality of your child’s sleep. Don't be afraid to ask about alternatives. There is significant research that indicates that watching television and computer games changes brain wave patterns and that this can interfere with sleep in a variety of ways. Therefore, you might also consider not allowing television or other "screen activities" right up until bedtime. Having a "buffer zone" between TV and computer use and bedtime allows for a winding down time before sleep. This also makes it less likely that you will have to negotiate "one more TV program" or "one more computer game" before bedtime. An additional recommendation is that children not have TVs in their bedrooms.

While not all sleep problems can be solved with environmental and schedule alterations, there is good evidence that a significant percentage of sleep problems can benefit significantly from such changes. Research is now shedding light of how such changes can also help children and adolescents with "behavior problems" or "psychological problems". It is important to note that this absolutely does not mean that if your son or daughter was diagnosed with ADHD, or any other diagnosis, that the diagnosis was made in error. It does mean, however, that if you give your pediatrician or other health professional information about your child's sleep that it might produce a different kind of diagnosis, and therefore a different kind of treatment recommendation. Even if the original diagnosis proves accurate, a good sleep hygiene routine can often improve the performance of your child beyond any improvements seen from other interventions you are pursuing for your child.