

You and Your Child's Health: The Importance of Sleep

By Susan Johnson, M.D.

I still struggle getting my almost 7 year old son asleep by 8:00. It seems there is a magic window. If we eat by 5:00 and I start slowing down his activities by 6:00, then there is a good chance that he will fall to sleep soon after reading stories at 7:30. If I don't have dinner ready until 6:00 or 7:00 and slowdown doesn't begin until 8:00 or 8:30, then my son seems to get a second wind and that keeps him awake and active until 10:00 or 10:30 at night. The next day is difficult for him. It is hard for him to get up, eat breakfast and get to school on time. He is tired and more irritable the entire day. What is happening?

It seems that the liver is involved in our ability to have a good night's sleep. It regulates our energy level for the next day and relates to our overall feelings of contentment or depression. The liver follows the cycle of the sun. Around 6:00 in the evening it wants to go to sleep and starts to store up the sugars (glycogen) to be used for the next day. It doesn't want to process any big meals (especially ones high in protein or fat) after 3:00 PM.

When our children (and us) stay up late at night we affect the liver's metabolism. It can no longer simply store sugar. Our body, by being awake and active, needs sugar in the blood stream and so we force the liver to reverse its process and break down glycogen to provide this sugar. We get a second wind, a burst of sugar in our blood stream, and yet we are really depleting our energy for the next day. Our liver can't store up the glycogen it needs for the next day and so the next day we have a liver that is depleted of glycogen. Our body THEN requires us to release stress hormones from our adrenal glands to keep us functioning. These hormones act to provide more sugar in the blood, but they also accelerate our heart rate, increase our blood pressure, and suppress our immunity (we get colds more easily.) We can tell when stress hormones are acting since we also develop cold hands and feet during the day from the vasoconstriction of the blood vessels to the hands and feet.

The combination of stress hormones and too little glycogen in the liver makes us develop a craving for sugar. When we eat something really sweet (like candy or cookies), especially on an empty stomach, the excess load of sugar over-stimulates our pancreas to produce too much of another hormone, insulin. Too much insulin causes our cells to take up or absorb too much sugar so that there isn't much sugar left in our blood. We become hypoglycemic with a low blood sugar. We feel tired, irritable and lightheaded and, for children, their body movements become more impulsive and overactive. Being hypoglycemic makes us crave sugar again and the whole process repeats itself throughout the entire day.

Some children and adults are more sensitive to these changes than others. Their pancreas may release more insulin in response to sugar. Some children and adults release more stress hormones in response to sleep deprivation, but this physiologic response occurs in all of us. For children that are already very active and have difficulties paying attention in school, going to bed early and cutting down on sugar really can help the child and family function better.

They say that any sleep we get before midnight is restorative and counts for double, and therefore it is far better to go to bed early (7:00 to 7:30 for a young school-aged child and 9:00 to 10:00 for an adult) and wake up early to get your work done.

Maybe there is truth in the saying by Benjamin Franklin:

Early to bed, early to rise, makes us healthy, wealthy and wise!