Everything You Wanted to Know About

Insomnia
And
A
Good Night's Sleep

Dr Harry Schick DC ,DAAIM, ABAAHP

Highpoint Health Center

Highpointhealth.com

Highland Park, NJ

732 249 9800

There was an article that came out recently discussing the potential connection between sleep and Alzheimer's Disease. This shouldn't be surprising, as poor sleep can be connected with almost any disorder, neurological or otherwise. During sleep, many good and essential functions take place that keep your body working at its best.

There are biochemical and hormonal changes that are supposed to occur when sleeping. One of these changes is the detoxification reactions primarily via the kidneys that will only happen with sleep. Furthermore, somatotropin (Growth Hormone) reaches its peak during sleeping hours, which is essential for true weight loss.

Of course, there are also mood issues when we are too tired as well as decreased ability to think clearly. Many poor decisions are made by the too tired!

So, what causes sleep problems or insomnia? First, there are three types: there are those who lie down, and can't fall asleep for a long time, those who fall asleep, but then wake up during the night well before the morning, and those who have a combination of both problems—they don't fall asleep easily, and they wake up either once or continually during the night. It's hard to live a healthy and productive life under these conditions.

What to Do

Let's look first at people who can't initially fall asleep. There are many reasons for this, and they fall into two categories.

Some people who don't fall asleep easily have a metabolic or chemical imbalance. This can be a simple nutritional issue. For example, calcium and phosphorus. These two work together, but in different ways. Phosphorus is like the accelerator of a car and calcium is like the brakes. If your phosphorus level is too high relative to calcium, you are going to be jittery and unable to fall asleep. Sometimes adding calcium or a calcium/magnesium supplement can help. Standard Process Vitamin Company has a product designed for this called Min Tran. It comes from the idea of a mineral tranquilizer. It can be totally effective, if that is the problem.

There also can be other types of nutritional problems.

The other general issue is stress: emotional and/or mental. Now, a person doesn't have to be tossing and turning or worrying about things for this to be the cause. A buildup of stress during the day, can turn on certain brain pathways that keep you from falling asleep. There is a two-fold balance in your brain between the brain chemical gamma aminobutyric acid (commonly known as GABA) and glutamate. Like the example above, GABA is the brake pedal and its counterpart glutamate is excitatory. Too high glutamate and too low GABA makes for a hard time falling asleep, and living in general!

One of the obstacles with increasing GABA, is that it is hard to get it to the brain where it does most of its work. There is a border around the brain called the blood brain barrier. If that barrier is intact, it only lets certain molecules get through. It protects the brain from large molecules and selectively lets chemicals in. This is a good thing. We wouldn't want just any chemical to reach the brain and influence brain function. GABA is too large to pierce the blood brain barrier. Therefore, if you take it as a pill, it shouldn't help. Yet, we find in many cases it does help. Why is that? Because there is a problem with the blood brain barrier. Good news-GABA can get there. Bad news-so can other chemicals which shouldn't have brain access! In that case, we have to work to restore the chemical blood brain barrier.

One way we can support GABA is to feed the body the raw materials it needs, which do cross the blood brain barrier. This way the body can manufacture GABA in the brain. These are chemicals such as vitamin B6, L Taurine, and L Theanine which have all been shown to increase GABA. These are found in a product called Gabatone from Apex Nutritional Company.

The other thing we can do is lower glutamate which works on the opposite side of the see-saw from GABA. Lowering glutamate itself, helps with sleep issues of this type. Glutamate is not a bad guy. It is essential for life. It helps us grow, pay attention, focus, it is important for bone health, and a full functioning immune system. The problem comes with too much of it. It is made by our bodies, but we should be wary of ingesting it in foods as additives. One common place for this is monosodium glutamate (MSG- yes, that's the familiar G for glutamate). Unfortunately, there are many ways that MSG can be added to foods without it having to be disclosed on the label. It can be "snuck" in under the label

“flavorings”, “corn starch”, “milk powder” or “dextrose” among others. Remember, the more ingredients on a label, the less likely the product is good for you.

The solution? We can help increase GABA or lower glutamate! But, there is another huge issue. Our body design already anticipated this problem, and has a mechanism that when glutamate gets too high, it can convert it to GABA. It’s incredible and just what we needed! There is an enzyme called glutamic acid decarboxylase (GAD-initials make life so much easier) which makes it all happen. But, there can be a problem here. *You knew it didn’t you*. There is a common genetic mishap that makes GAD not work well. This is easy to test on a blood test. It is also commonly found in people who have a genetic problem called a methylation issue. Unfortunately, in my testing approximately 300 people suspected of having this issue, most do show the genetic problem.

Okay, where does that leave us? We must take action if there is a glutamate/GABA imbalance by finding where it comes from and taking measure to correct it. There are certain calming creams we use at night, particularly with children who have this. If there is a genetic component, we have to explore other ways to support the process. Remember, for many genetic issues it doesn’t mean that it is a life sentence to doom, rather there are additional steps that must be done that not everyone needs.

As a side note, what issue do you think can occur with too much gluatamate? ADHD. In children and adults.

The third most common way to look at the problem of initially not being able to fall asleep is with lowering stress. Anyone need this?

Two Ways of Looking at Stress and Sleep Problems

First, we will look at the nervous system overall. Speaking simply, there are two parts to the nervous system-the sympathetic and parasympathetic. The sympathetic is known as the fight or flight system. It is when your body encounters a stimulus and wants to either fight or run. This is very helpful if we are crossing the street and a car-or lion- comes quickly approaching. Our body goes into full mode run! Or if we encounter someone and we need a quick get-a-way of any type we are all systems go to run or fight. The problem is that this

system can be stimulated by things real or imagined. It can also keep going on and on and on and on long after a problem is over. Think of your car in neutral and your foot pushing hard on the gas. You are going nowhere fast.

I remember an image from the book, “Why Zebras Don’t Get Ulcers”, by Dr Robert Sapolsky. He paints an image of a zebra running from a predator and narrowly escaping with his life. As he sits under a tree, resting after this near escape he is munching calmly on grass. He is not worried that the lion may return or someone else is out to get him. The episode is over and he calms down. This is an example of the parasympathetic nervous system taking over. This is the calm part of our system which is the part that should be turned on at bed time.

(By the way, when he wrote that book, I don’t think it was understood that ulcers are primarily an issue of H Pylori bacteria, not stress the way it used to be thought—nonetheless, his point remains instructive for us).

Does that mean that someone who can’t fall asleep because they are worried has an imbalance of their sympathetic/parasympathetic nervous systems? Or to state it simply, they are too wound up, and can’t relax? Maybe, and there are tests to know for sure.

Testing Nervous System Imbalance

There are two helpful tests we can do to determine this type of nervous system imbalance. First we do a blood pressure test, called Ragland’s Test. This is done by taking your blood pressure lying on your back or sitting and then standing. The second reading is done after standing silently for one minute. (This step of waiting a full minute is unfortunately often skipped and the blood pressure is retaken immediately). Your top number (systolic) should go up 6-10 points compared to the first reading. If it doesn’t, you have chronic stress which is eating away at you. How do we know? Standing is a mild stress, and your body should adapt by slightly and temporarily raising your blood pressure. If it doesn’t, imagine how poorly it must deal with real stress. This is indicative of a worn out system.

The second test is called heart rate variability (HRV). Again, this is a nervous system test, not just a cardiac test.

Your heart contracts a certain number of beats per minute. A normal range of beats is considered between 68 and 72. Too high is not good. Interestingly, too low is not good either. Although, certain athletes wear their low number as a sign of good health. Not so.

Heart Rate Variability is an interesting test. Let us say, to make the math simple, your heart beats sixty times per minute, which would equal to one beat per second. If we were to guess, most people would think the perfect rate would be slow and steady, one beat per second for a total of sixty per minute. In fact, this has been shown to be the least healthy measure of nervous system health and health in general. You need to have some variation or variability in the beats- but not too much. So one beat may come in a little over a second and another a little less than a second between beats and so on. Not exactly regular and not too irregular either (that would be another problem).

It turns out that when you inhale and exhale, there are variations that show up on your breathing graph. Like the blood pressure mentioned earlier, where standing should create a temporary change, breathing also should create a change. When it doesn't, it indicates an unresponsive nervous system, particularly as it relates to sympathetic/parasympathetic balance.

If either or both tests show an imbalance in your nervous system, and you are having sleeping issues, the resolution may come by creating a balance. If the issue is mild, simple exhalation breathing exercises may help. This means breathing out more than you breathe in for periods of time. This may also help with snoring if done properly. For most people this means breathing in for a count of four, and out for a count of six or eight. A lot of the theory on this was developed by a Russian doctor named Konstantin Buteyko in the mid 1900's. There are a number of variations on this method which can be helpful, depending on individual need.

If more intervention is needed, there is a home training device called Heartmath which can be helpful. This helps to retrain the nervous system to balance more into parasympathetic activity which in turn calms the body and mind. If this is an issue in sleep, this may help. Again, it depends on the causative factors.

For some, this must go a step further.

The brain is made of an enormous number of brain cells. Most estimates are around 100 billion. These cells need to communicate with each other happens primarily via electromagnetic messages called brain waves. Depending on the speed of the wave, they are given different names. For example, theta and delta are slow moving waves, while beta is much faster. If you are trying to fall asleep, you will have a much easier time with a brain flooded with theta or delta waves than beta waves (which help you wake up and pay attention).

The way we can absolutely tell the condition of your brain waves is with a brain map. We use sensors on the head at specific points to know which waves are firing on specific brain sites. It looks similar to an EEG, but with a different type of analysis. If we find an imbalance in brain wave patterns, there are two ways to going about a correction.

Brain Entrainment

To relax and be able to fall asleep, the brain needs to have appropriate slow waves firing at sleep time. There is specific equipment designed to push it or nudge it into the right pattern. With these tools, we support the brain to move into the correct pattern. Some of these therapy devices use lights to stimulate the brain (Roshi Feedback) worn as glasses for 10 to 20 minutes. Some use sound and lights with headphones and glasses (Rife Machine True Focus adaptor), and some use infrared stimulation by wearing a helmet like device for five minutes (Cognalight). Sometimes we also use electromagnetic stimulation devices (PEMF). Depending on the person, any of these can be very helpful.

With brain wave imbalances, brain entrainment is the easier way to work—if it works. Sometimes it is effective, but doesn't last long. In these cases, when it is less than effective or needs repeated sessions, neurofeedback is likely indicated.

While brain entrainment pushes the brains into the right pattern, neurofeedback enables the person to retrain their own brain to make the changes. A major benefit to this therapy is that once changed, it usually is permanent. Also, while changing these patterns, many other changes are possible in areas such as anxiety and depression, learning and focus, and fatigue-among others.

Here is an example of how neurofeedback works. Let's say a person has a high brain wave pattern at point "X" in their brain. At this point, the brainwaves are firing between an 8 and 9 and they should be between a 2 and a 3. As long as they are high, sleep will be difficult. We place a sensor on their scalp to read the pattern of 8-9 and put the other end of the sensor into a computer. The computer is hooked to a monitor. We put a movie into the computer, and the person is watching the movie with the sensor applied. The computer continues to read their brain waves in real time. When their wave goes to a 9, the movie picture fades from the screen and when it comes to an 8, the picture appears. The person wants to watch the movie, so the brain figures out the pattern, and over time brings the brain waves down. Eventually, it fires between a 7 and an 8. The computer is reset so that when it fires at 8, the picture now fades and comes on at a 7. We continue on in this way until the brain learns how to come down to a 2-3. Once it gets there, it wants to stay there because that is the place of least stress. And now the person is better able to sleep.

So these are a few examples of the type of issues when dealing with people who can't fall asleep when they initially lie down. There are also environmental aspects that sometimes play a roll, like not having the head of the bed near an electric plug outlet as some people are very sensitive to this. All things need to be checked to get the best results.

People Who Fall Asleep but Then Wake Up Too Early

Once a person is asleep, they may wake up before it is time. There are many possible reasons for this, and some overlap with the points mentioned about. We will discuss three additional topics here: blood sugar, digestion, and bladder.

We stay alive because our body works and maintains us based on the principle of homeostasis. This is like an internal thermostat. It keeps our acid/alkaline blood balance within a very specific range. For example, if we become too acidic, chemicals are released in our blood to make us more alkaline. The opposite is also true. Our body temperature stays within a narrow range. We cannot get too hot or cold internally and survive. To keep us out of hypothermia or hyperthermia, there are temperature control mechanisms. This is what makes us warm blooded

as opposed to a cold blooded animal whose temperature rises and falls based on outside temperature.

The same is true for blood sugar. It can't go too high or too low. When it gets too high, it is called diabetes mellitus, when too low,it is called hypoglycemia. There are different opinions on what these numbers should be, but all agree there is a balancing homeostatic mechanism keeping blood sugar somewhere in the middle.

The way blood sugar is kept balanced is through hormonal control. Certain hormones are released in the blood stream to either raise or lower blood sugar. One of the first ones released into the blood when sugar levels drop is epinephrine. This works great to give a burst to blood sugar levels when they drop.

Epinephrine is sometimes called by the name adrenaline. This is the hormone that kicks in first when you have to ignite your sympathetic nervous system. Like in the example above: when you cross the street to find a car or lion coming at you, you must get out of the way---instantly! For this, you need many systems turned on: your pupils dilate, your breath becomes short and quick, blood flows away from your digestive system to your arms and legs, and to fuel this, blood sugar is needed asap! Epinephrine kicks in.

Now this is the same epinephrine that kicks in if your blood sugar drops (which is also considered an emergency) while you are sleeping. What do you think it does to you? Yes, it wakes you right up. Not what you want in the middle of the night!

So one thing we have to check is blood sugar balance. A common blood finding in people who have this issue, is a high sugar level in the morning (glucose over 99 with first of the morning blood test) and an A1C under 5.6. Sometimes the A1C can also be high. A1C is a blood test that gives an average of your blood sugar levels over a three month time period by measuring sugar in relation to hemoglobin.

A Second Cause for Waking in the Night

Based on principles similar to acupuncture, there is an organ clock that exists within people. This means that at certain times of the day and night different

organs use more energy or need more energy to do their jobs. Think of it like each system has a two hour period when it is the organ needing and using the most energy-whether that energy is blood, nerve, lymphatic, bioelectrical or however it may be. For example: the kidneys are the prime energy organ in the late afternoon and evening between 5 and 7pm.

During the night, the main organs at work are the gall bladder, liver, lungs, and large intestine. Each takes a two hour period beginning at 11 pm. These organs are heavily involved with digestion and detoxification. As far as detoxification goes, there are four main ways we detoxify ourselves normally. Most people think of urine and bowel movements and maybe skin sweating as means to detoxify. What is often forgotten is the way the majority of toxins are released and that is via the lungs through exhalation. It is a major source of detoxification.

What I have seen often is a person who comes in and relates, for example, a number of liver symptoms. They have a hard time digesting fats, they may have peeling skin on the palms of their hands, pain in their feet and they wake up every night around the same time. I then ask them, “Around 3 am?” They surprisingly want to know how I knew that. Well, that is the time the liver ends its two hour tour of duty. Some people are shocked to find they awaken at the exact same time every night. “I look at the clock and it is always 3:12 am. How can that be?” It is the organ relationship.

When someone tells me they awaken during the night, I always ask about digestive symptoms. Sometime they say they have no digestive problems. On further examination, I may find that they only have bowel movements once or twice a week or they have stomach acid or can’t eat a large number of foods without pain. They have become so used to it that they don’t consider it a problem. Others have no digestive symptoms. Except waking in the middle of the night, that is.

In this situation, it is the correction of digestive imbalance that brings sleep relief. This can include food changes, digestive enzymes, probiotics, and food counseling such as chewing better, eating slower and not eating during duress.

One word about probiotics. They are the current craze and that is a good thing. Our intestines work based on who lives there, which bacteria, fungi, and yeasts-the ones that are supposed to be there. People sometimes use the word

probiotics the way they use the word vitamins. Yes, they say, I take probiotics. That is good, but which one is important. What I have found is that probiotics must vary because taking the same ones over and over will allow certain colonies of normal microorganisms to flourish, but diversity is a key. No one microorganism should be too much, or too few in number.

The third most common reason for waking during the night is due to bladder issues-the need to go to the bathroom. This is something that tends to get worse with age.

When something tends to worsen with age we often look to the brain for the cause and fix. There are a few parts of the brain that if they over fire, will cause excessive urinary needs. This can happen all day long or only at night. One of these areas is called the mesencephalon or mid brain. When this over fires, there are many problems possible. To calm an over firing brain, usually takes two approaches done together.

First with any brain imbalance, inflammation is a key factor. If there is inflammation at the level of the nerve cells, improper firing is a possibility. When this is the case, we have to look at what things may be causing the inflammation. It can be foods (milk, gluten, eggs, soy, yeast—or anything potentially), metal toxins, parasite, molds and fungus are the main culprits. Once we determine this, we can think about remediation. There are also certain supplements which we know help with any type of nerve inflammation. A good example of this is turmeric/cumin. Products such as Meriva from Thorne labs or Cocurcumin from Ayesh Labs can be helpful. Remember, whatever is given has to cross that same blood brain barrier we have spoken about.

As far as correcting a brain imbalance once the inflammation is reduced, it is a matter of finding which areas are either over or under firing. For example, if the left side of the brain is firing at a much higher rate than the right, this can effect the mid brain which can effect excessive urination. And we are back to sleep issues here again.

Another procedure we use for excessive urination is Pulsed Electromagnetic Frequencies (PEMF). This phenomenal device helps to lower inflammation anywhere in the body. In this case, we can use it on the brain or bladder or both, depending on what is indicated.

So that is the long story on dealing with sleep issues. However, it is only a part of the picture. While many people will find help with the items mentioned above there are numerous other causes and subsequently procedures to help one sleep.