

Uncovering the Truth About Sleepless Nights

August 2014 Webinar Q&A



ZRT LABORATORY

Uncovering the Truth About Sleepless Nights Q&A

The Webinar

In “Uncovering the Truth About Sleepless Nights,” Candace Burch, ZRT’s Hormone Educator explained how chronically elevated cortisol levels inhibit sleep and lead to lower melatonin levels. The webinar also covered the key symptoms of sleep hormone imbalance, long term consequences of sleep deprivation and how 4-point measurement of sleep-wake cycle hormones provide a true 24 hour sleep-wake pattern. To view a recording of the webinar, go to:

<http://www.zrtlab.com/truth-about-sleepless-nights-webinar>

The questions in this Q&A came from the audience during the presentation.

“It is a common experience that a problem difficult at night is resolved in the morning after the committee of sleep has worked on it.” – John Steinbeck



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Melatonin Questions

Is there any problem with taking Melatonin 10mg every night to sleep?

Most of the research for sleep has been done using a dose range of 0.3mg to 12mg, so you're certainly in that window. However, some research suggests smaller doses are just as effective with fewer side effects. Long term studies of melatonin, though there haven't been a lot, have demonstrated its safety over a number of years with nightly use.

Instead of taking melatonin, what about taking 5htp instead - does this allow your body to 'decide' how much melatonin to make?

The short answer is maybe and it makes sense that it would in many cases. One scenario in which this might not be the best approach is when there is a problem with pineal production of melatonin such as pineal gland calcification associated with aging. Another is when someone is taking a medication like a beta-blocker that acts to diminish melatonin production. If it's simply a nutritional issue or a "sluggish pathway" issue, then 5HTP works well. Much of the time, however, that's not the case and we have to go to the source.

Can you please let me know if it's detrimental (dangerous/counterproductive) to take melatonin supplements for sleep when having difficulties falling asleep? When I work the night shift, and have only a 5-hour window to get sleep before waking up early, I sometimes take melatonin. Is this okay? Or do you have another suggestion? I don't want to alter my natural production in the brain, and mess up my hormone balance. I'm also a 44-year old woman, so could be in the perimenopasal phase.

Melatonin is a good option for decreasing the time it takes to fall asleep and has been studied extensively for shift work sleep disorder. If it's not enough, you can add light therapy to the regimen in the "mornings" as well which entails reading or sitting in front of a 10,000 lux blue light for about a half hour when it's time to wake up.

Are there other health conditions (besides aging and stress) which impair melatonin production? Treatable?

There are a handful of conditions that are associated with altered melatonin levels. People with major depressive disorder tend to have disruptions in the rhythms of the genes that control the circadian rhythm and will often have lower melatonin levels, people with cancer,

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Type2 diabetes, and those with traumatic brain injuries can all have altered melatonin levels. Some drug therapies are known to thwart melatonin production as well such as beta blockers, calcium channel blockers, ibuprofen and other NSAIDs, not to mention caffeine, alcohol and tobacco.

What do you think about eating foods that contain good amounts of natural melatonin (i.e tart cherry juice, walnuts, etc)?

Foods are the ultimate way to supplement our bodies. Melatonin has been found in all sorts of foods including kiwi, lychee, walnuts and tart cherries, but also in chicken, beef, pork, lamb and fish. Evidence can be hard to find when it comes to food as medicine. I did find one study on tart cherry juice from 2012 that showed drinking it resulted in higher melatonin levels and improved sleep parameters. There may be something to this. What do you have to lose besides more sleep?

Questions About Getting Restful Sleep

I suffer from cramps in the night. I take magnesium, eat bananas - anything. It wakes me up, and keeps me up at night. Help.

Cramps that occur at night are often due to stress which increases tension in the muscles and raises levels of the stress hormone, cortisol. At the same time magnesium, potassium, and calcium levels are depleted making us more vulnerable. Cramps are a clear warning sign that these essential minerals are in short supply, so the first step to preventing them is to eat foods rich in potassium (bananas, tomatoes, potatoes, broccoli, cantaloupe), calcium (milk, cheese, yogurt, sardines, dark leafy greens) and magnesium: nuts and seeds, dark leafy greens, beans and lentils, brown rice/quinoa/ bulgur, dried fruit and, oh happy day, dark chocolate (in moderate amounts - and not before bed - as dark chocolate contains a type of caffeine that can disrupt sleep)!

You can also try a combination of 500-700 mg of calcium and half that amount of magnesium divided into several doses throughout the day and one before bed as physician recommended.

In these dog days of summer, keep in mind that physical activity in extreme heat, can lead to dehydration through excessive perspiration. Thus it is crucial during hot weather months to stay well hydrated with plenty of water and liquids (but avoid caffeinated beverages).

You may also want to consider having your iron levels checked, as low levels can contribute to leg cramps, especially at night.

A warm bath before bed can help ease cramps, and both massage and acupuncture are

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worth exploring.

Stretching exercises in the evening can release tension held in the muscles to bring down stress hormones and help prevent cramping. The American Academy of Orthopaedic Surgeons website: orthoinfo.aaos.org has some great stretches for calf, hamstring, and quadriceps.

In addition to stretching, try to get regular aerobic exercise. As we get older, muscles can begin to atrophy, making cramping more likely especially if you're inactive.

By the way, cigarette smoking impairs circulation and raises risk of cramping, so if you smoke, there's no time like the present to stop. You have only your leg cramps to lose.

I usually wake up between 3:30-4:30 a.m. Would it be better to arise when the sun rises and to adjust my wake up time depending on sunrise/sunset like farmers?

If you can exercise that option, by all means do! As much as possible, we want to mimic the natural awake-in-the-light/asleep-in-the-dark rhythm our bodies are meant to follow. After all, electricity is a modern invention - we human beings are not. So to rise with the sun and retire as darkness comes on is getting much closer to our innate sleep wake cycles.

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“Sleep is the best meditation.” –Dalai Lama

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Is talking during sleep related to hormone imbalances?

While few if any studies address this, what we do know is that high stress hormone levels, especially at night, lead to a state of hyperarousal and shallow sleep. Thus, consider that talking in your sleep may reflect a mind full of internal chatter and unresolved problems when you lay your head down. Try emptying your mind before you hit the pillow by writing all extraneous thoughts down, turning off incoming emails and texts, deep breathing or meditating to let stressful thoughts go, and, last but not least, saying the words, I love you to yourself or significant others before drifting off.

What if cortisol rhythm is off? Peaking at 3-4am instead of 8am. Crashing at 4-5pm instead of later?

If you suspect that your cortisol rhythms are off testing levels in concert with melatonin (see Sleep Balance profile at www.zrtlab.com) can reveal to what extent an imbalance of these key hormones is impacting your ability to sleep. If testing determines that your sleep wake cycle is indeed off, you can take steps to rebalance cortisol levels through stress reduction techniques (e.g. deep breathing, stretching, meditation), dietary changes (avoidance of caffeine and sweets throughout the day), supplementing with B-vitamins and

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adaptogenic herbs (e.g. rhodiola, dong quai, ashwaganda) that support adrenal function. If melatonin levels are also out of whack, take care to create the right conditions for natural melatonin production, such as dimming the lights before bedtime, turning off all electronic (blue light) stimulation, and creating a sleeping environment that blocks all light. Melatonin supplementation can also help (see answers 1-3 below) if used appropriately.

What would be a normal healthy range of melatonin in an adult female?

The quick answer is that it varies. A healthy range would show someone above the median (half-way) of the expected reference curve that is provided with results. The ranges ZRT established for the urinary melatonin metabolite, 6-sulfatoxymelatonin (MT6s), were based on levels seen over a 24 hour clock time. We took the average and 20-80% variation at different time intervals to establish expected ranges for people not experiencing sleep issues. The ranges vary depending on the time of day.

What are suggestions to help with the perimenopausal transition of hormones (drop in melatonin)?

The adrenal glands have the big responsibility of taking over hormone production in mid-life, starting around perimenopause when ovarian hormone production starts to wane. So this is the time in life when it becomes particularly important to reduce stressors that tax adrenal function. To support the adrenals in meeting the demand for hormones we need to practice stress management techniques, optimal nutrition and by all means get enough sleep. (see answer 4 above)

Sleep that “knits up
the ravell’d sleeve
of care, ...balm of
hurt minds,...chief
nourisher of life’s
feast.” – Shakespeare



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Questions About the ZRT Sleep Balance Profile Test

Will waking up in the middle of the night to urinate affect the melatonin/cortisol test that uses the first morning urination? If you wake up and urinate in the middle of the night and don't turn on any bright lights, and go back to bed immediately afterwards this should not affect your first morning melatonin value. Melatonin levels are dependent on light exposure. The brighter the lights the lower the melatonin. This is why it is so important to sleep in a dark room with as little light as possible.

Does the Sleep Balance Profile include interpretation of the results?

Yes, the Sleep Balance profile test report provides a 3-page comprehensive interpretation:

- Tested hormone levels are shown in numbers, **as well** as graph format.
- Patient-reported symptoms listed as mild, moderate, or severe are documented and weighted according to the category of imbalance they fall into.
- The comment field will address hormone test results and related symptoms.

Do you have to go off all sleep supplements to do the new cortisol/melatonin test?

The only sleep supplement you should NOT take the night before collecting urine is melatonin, unless you want to see how much melatonin ends up in urine following a melatonin supplement. We test a melatonin metabolite in urine, 6-sulfatoxymelatonin, which correlates very closely with circulating levels of melatonin released from the pineal gland. When melatonin is taken as an oral supplement, as much as 50-70% of it is immediately metabolized to 6-sulfatoxymelatonin, which does not enter the systemic circulation, and is then eliminated in urine. So, oral melatonin at night before bed can result in a very high level of urinary 6-sulfatoxymelatonin in the first urine void that is not reflective of circulating levels of melatonin in the bloodstream. If you are wanting to determine how much melatonin your pineal gland is producing throughout the light and dark periods of the day it is best to avoid melatonin supplements for a couple of days prior to collecting the four urine samples throughout the day. However, if you are taking melatonin and it makes you feel sleepy all day long it's possible you are not clearing it fast enough. In this case, testing with supplementation would make sense. If the urinary 6-sulfatoxymelatonin levels remain high with melatonin supplementation this probably means you are a slow metabolizer and don't clear other medicines very fast either. What you will see with the diurnal 6-sulfatoxymelatonin results is that levels remain much higher than range for all four

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“Sleep is the golden chain that ties health and our bodies together .”–Thomas Dekkar

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time points. In this case it may be better to lower the dosage if you are using it to help with sleep. Too much oral melatonin supplement can throw off the normal circadian rhythms (low day, high night) of melatonin synthesis.

4) So after getting the sleep hormone testing done, I would understand treating a melatonin deficiency with melatonin, but what about cortisol, how would you treat this one?

It all depends on whether your cortisol levels are following the normal diurnal pattern: highest in the morning, tapering off gradually to lower levels throughout the day, then reaching the nadir at night. Cortisol levels that do not follow this normal pattern, particularly when they remain high into the night, lead to a state of hyperarousal that competes with the natural rise of melatonin at night. So back to your question - best way to treat? By taking steps to prevent cortisol from rising at the wrong time in the sleep-wake cycle.

First, assess your stress levels: Ask yourself, Am I overworking, cramming too many activities in, driving myself constantly? If this sounds like you, chances are your cortisol is stuck on overdrive. Turn off the stress tap: practice stress management techniques (deep breathing, meditation, stretching, aerobic exercise), seriously restrict caffeine in coffee, colas, (note: Mountain Dew is one of the worst offenders) and energy drinks that jack up cortisol levels. Steer clear of these from early afternoon on if you intend to sleep that night! Skip alcohol too close to bedtime as it drop kicks blood sugars during the night, a cortisol trigger that will wake you right up. Ditto with sweets before bed. Chocolate lovers beware: with its sugar and caffeine content (even higher in dark chocolate) it's a double whammy wake-up. Swap sugars for a protein snack rich in tryptophan (precursor of melatonin) like oats, yogurt, cottage cheese, eggs, sunflower/pumpkin seeds etc.

Natural supplements that support the adrenals and help stabilize cortisol levels include B-vitamins (though not before bed), Progesterone (if levels test low), and various adaptogenic herbs like ginseng, ashwagandha, rhodiola, that help the adrenals adapt to stressors.

Essential Sleep Hygiene: Exposing yourself to bright light at night tricks your brain into thinking its morning and makes it more difficult to sink into that drowsy ready for sleep state. To help yourself make ample melatonin dim the lights a few hours before you hit the sack, ban cell phones etc. from the bedroom, and create a sleeping environment as dark and dreamy as possible!

Want to get tested? Find a ZRT Provider here: <https://myzrt.zrtlab.com/tools/FindProvider>

Best Before Bed Stress Busters:

- deep breathing, meditation, chanting
 - stretching exercises, yoga, pilates, can release tension held in the muscles and soothe stress hormones
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