

Eat Your Way To Better Sleep

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Ultimately, to maintain a normal sleep rhythm, one must maintain a normal eating rhythm. Part of the reason for this linking of eating and sleeping is the body's cortisol rhythm.

Normal Cortisol Rhythm - A Key to Better Sleep

Cortisol is a hormone produced by the adrenal glands that are located above the kidneys. Cortisol helps regulate many body functions including activation of thyroid hormone, bone resorption, muscle strength, energy production, resistance to infection and cancer, resistance to auto-immune diseases, and intensity of allergic reactions. Cortisol is a strong determinant in how rejuvenating sleep will be.

Cortisol is produced in a cyclic fashion with the highest levels being released in the morning and the lowest at night. This 24-hour cycle is called the circadian rhythm, and an abnormal circadian rhythm of adrenal hormones can adversely affect multiple critical functions in the body, including energy production and immune surveillance. Any disruption in this rhythm can result in a tendency toward fatigue, easy bruising, infection, osteoporosis, low sex drive, infertility, migraine headaches, adult acne, abdominal

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bloating, and either low or high blood pressure.

A disruption in the cortisol level during the night will affect the quality of sleep. If the cortisol level is high during the night, an individual will have disrupted rapid eye movement (REM) sleep and will wake up non-refreshed, no matter how many hours of sleep the individual appeared to have.

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REM sleep is the stage of sleep during which an individual dreams. It is accompanied by muscle relaxation and an increase in the breathing rate. The intense dreaming that occurs during REM sleep is a result of heightened cerebral activity. The paralysis that occurs simultaneously in the major voluntary muscle groups, including the muscles of the chin and neck, is thought to be a way to keep the body from acting out the dreams that occur during this intensely cerebral stage.

REM-disrupted sleep may be one of the reasons that some individuals can have a full eight hours or more of rest and none-the-less wake up exhausted.

Key to rejuvenating sleep is having a normal level cortisol at night. Key to a normal cortisol level at night is a normal cortisol rhythm during the day and leading up to sleep.

Food Glycemic Index and Cortisol Levels

Cortisol levels are rapidly responsive to our food intake during each day. The glycemic index of a meal affects the cortisol level for approximately the upcoming five hours.

The glycemic index of a food reflects how our blood sugar level is affected by the particular food. Foods containing high sugar and low fiber have a high glycemic index and result in wider fluctuations in insulin levels than foods with a low glycemic index.

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High insulin levels have been found to be an underlying culprit in many diseases such as coronary artery disease. (N.B. If you have diabetes and use insulin injections, please do not interpret this statement to mean that you would be well served to cut back inappropriately on your dose. Please discuss interpretation of this information with your physician.)

High glycemic index foods, such as sugar and refined starches, cause cortisol levels to rise. For individuals who start the day with a normal cortisol level, starchy or sugary breakfast food choices can cause the cortisol to overshoot the normal range. The cortisol will likely remain elevated all day - and all night. Intervention with herbs or supplements that lower cortisol can help.

Worse than having a high glycemic meal is having no meal at all. Any time during the day that one does not eat within five hours of the previous meal or snack, the cortisol level tends to rise. A rise above the normal range during the day almost guarantees that the nighttime cortisol will be high and thus disrupt REM sleep.

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A single late meal or skipped meal or high glycemic index meal during the day can result in a high cortisol during the early part of the night. A cortisol level higher than it should be during the night results in a disruption of REM sleep and with it non-refreshing sleep.

Low glycemic index foods such as eggs, meats, poultry, fish, and most vegetables tend to lower the cortisol level. If one starts with a normal morning cortisol, eating foods from the low glycemic index category every five hours during the day is needed to keep the cortisol on its normal downward track.

Note that the high glycemic index of sugar or starch, including whole grains, requires consumption of nearly an equal weight of animal protein to maintain glycemic balance. Vegetables usually balance themselves in terms of glycemic index, but vegetables are not of sufficiently low glycemic index to balance

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grains - at least not the grains as they are routinely prepared by most Americans. Note that many cultures about the world have developed a 3-step process of pan-frying, soaking, and steaming rice that lowers the glycemic index of this non-gluten grain.

To prevent the deleterious upward swing of cortisol, one usually does better to balance all sugars and grains, including whole grains, with animal protein. Even given what we know about the various pitfalls of animal protein, it probably remains better to eat animal protein with each meal at which we have sugar, including fruit, and/or grains. If animal protein is not tolerated for medical or religious or social-consciousness reasons, it probably better to remain vegan than to be carbo-vegan.

Has it always been this way? Perhaps not. Many factors have changed in the past century.

High Cortisol Caused by Non-Sprouted Grains

For example, our grains have been hybridized to contain about half the protein that they contained in 1900. In addition, our failure to sprout our grains in the preparation of the flour used for our commercial breadstuffs has added to the disruption in our cortisol rhythm.

Non-sprouted grains result in an inflammatory-response in the gut that causes the secretion of excess cortisol into the intestinal tract. This hormonal drain of cortisol in the gut deprives other parts of the body of their fair share of cortisol. While allergy and inflammation manifest themselves elsewhere in the body, the gut is a set-up for intestinal dysbiosis (abnormal gut flora), lowered immune protection (due to lowered secretory IgA levels), and metabolic reactivity to foods.

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Sprouting removes much of the toxic peptides that are found on the hull of grains. Feed children sprouted grains to avoid or delay gluten- and gliadin-intolerance. Individuals with gluten-intolerance are advised to avoid gluten grains. Note that the incidence of gluten intolerance is especially high for those with Celtic,

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Nordic, or German background. However, travel and inter-marriage has led to the dispersion of this gene to virtually every land. In addition, with the introduction of genetically-modified grains into our food supply, the incidence of grain intolerance has risen in populations from all backgrounds.

The Fallacy of Carbohydrate Loading

Individuals who have been violating these eating guidelines may have depleted their liver glycogen stores. These individuals may find themselves hypoglycemic in fewer than five hours. It usually requires about three months of consistently eating glycemicly-balanced meals at regular intervals in order to replenish the glycogen stores.

Glycogen from the liver is necessary to provide energy to allow the brain to continue to function during the night and during periods of skipped meals during the day. Brain cells are injured when glycogen is not available.

A fallacy that led to serious health problems for many athletes in recent decades was the belief that foods high in sugar and starch helped to promote glycogen storage. Carbohydrate-loading leads many athletes to develop profound fatigue and other conditions related to glycogen depletion. It now appears that a balanced intake of protein with non-gluten grains and non-fructose carbohydrates would have been a wiser choice.

Cancer and an Elevated Midnight Cortisol

In addition to disrupted REM sleep, an elevated nighttime cortisol suppresses the immune system and with it our resistance to infection and cancer. Researchers have reported that elevated secretory midnight cortisol is correlated with an increased risk of breast cancer. Individuals who take measures to correct their cortisol rhythm find a better response to the regimens they use not only for recovering from infection but from malignancies as well.

Sex Hormone Balance and Cortisol

Also keep in mind that the body corrects abnormal cortisol levels by "stealing" from the sex hormones. The

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biochemists call this "pregnenelone steal," because pregnenelone is the precursor of BOTH cortisol and the sex hormones. Thus, abnormal cortisol by its nature causes derangements in the sex hormone balance.

Imbalances of sex hormones lead to lowered sex drive, balding, prostate enlargement, urinary hesitancy and dribbling, nighttime urination, PMS, uterine fibroids, heavy menstrual flow, and breast tenderness. It is much easier to correct the sex hormone imbalances if the cortisol rhythm is normal. If one fails to correct the cortisol rhythm, long-lasting correction of sex hormone imbalances is unlikely.

Pain, even a simple headache, can elevate cortisol. Pain and the elevated cortisol both contribute to sleep disruption.

It is also important to note that hormone imbalances can rarely be corrected safely simply by taking more of the hormone that is determined to be low. It is imperative that an effort be made to determine why the level is low and to address the primary imbalance whenever possible.

It is almost always necessary to correct dietary indiscretions in order to safely replace and balance hormones. Much of what one reads about the hazards of taking hormones such as progesterone or estrogen is associated with problems from the diet.

Diet modification can not only reduce the risks associated with the use of sex hormones, but also the proper diet can often reduce or eliminate the need for sex hormone replacement at all.

Actions to Take If I Do Not Start With a Normal Cortisol Rhythm

So far, this discussion has assumed a normal circadian rhythm of cortisol and the recommendations were for maintaining the normal rhythm.

If the rhythm starts out with disruption, then the first measure would be to correct the basic rhythm. A physician familiar with management of cortisol circadian rhythm can assist you.

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The circadian rhythm of cortisol can be disrupted from birth. Contributing factors can include viral infections, birth canal trauma, an abnormal maternal rhythm, and irregular eating patterns. Any cause of disruption of the signals from the hypothalamus and pituitary to the adrenal can contribute to an abnormal cortisol rhythm.

Measures to reverse patterns caused by such diverse factors can include homeopathy, acupuncture, manual therapy such as cranio-sacral or Bowen (a neurostructural technique), herbs, and diet.

Pain as a Major Cause of Cortisol Imbalance

Pain, even a simple headache, can elevate cortisol. Pain and the elevated cortisol both contribute to sleep disruption. Dietary measures alone are seldom adequate to overcome the disruption of cortisol caused by pain. Pain management and correction of the underlying causes are primary in these instances.

A single skipped or late meal or a high starch or sugar load is enough to throw off the cortisol rhythm for the upcoming night and makes it less likely that the next day will start with a normal cortisol rhythm.

Emotions as a Contributor to Aging Hormone Levels

Emotions that arise out of feeling threatened or feeling any sense of lack are associated with the release of specific stress hormones, most notably cortisol. Fear, frustration, anger, and sadness increase cortisol and reduce sex hormones.

... the body corrects abnormal cortisol levels by "stealing" from the sex hormones. ...

Imbalances of sex hormones lead to lowered sex drive, balding, prostate enlargement, urinary hesitancy and dribbling, nighttime urination, PMS, uterine fibroids, heavy menstrual flow, and breast tenderness.

In addition, release of digestive enzymes does not occur during a sense of flight or fight. Food will sit in the stomach and decay rather than digest when one eats while feeling stressed.

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To determine whether it is safe to divert energy from the fight-or-flight system to the digestive system, the body effectively is asked, "Do I have enough of everything?" Those of us who have adequate food, clothing, and shelter sometimes fail to respond in the affirmative to the questions, "Do I have enough time? Do I have enough respect?" Satisfaction with our blessings is key to proper digestion.

Herbal Measures to Lower an Abnormally High Cortisol

Measures to help correct an overshoot in cortisol can include herbs such as de-glycerinized licorice (DGL) or phosphorylated serine or phosphatidyl serine. Phosphorylated serine taken at 6 p.m. can help bring a high cortisol down to normal by bedtime. In some individuals, the action occurs in as little as one hour and these individuals may need to take the phosphorylated serine later in the evening.

Herbal Measures to Raise the Cortisol Level

Note that whole licorice root extract (*Glycyrrhiza glabra*) does the opposite of DGL. Whole licorice root extract tends to raise the cortisol level. It is helpful for individuals with morning fatigue due to low cortisol. A cup of licorice tea in the morning can help overcome the lack of appetite experienced by those with low cortisol levels.

Adaptogenic Herbs to Balance the Hormones

Among other herbs that affect cortisol are included various adaptogens such as ashwaganda, *Rhodiola rosea* (Arctic root or golden root), Reishi, wild Chinese and American ginseng, cordyceps, Siberian ginseng (*eleutherococcus senticosus*), Dong quai, and black cohosh.

The mechanism by which adaptogenic herbs achieve their stress protection activity has been well-researched around the world. Adaptogens act by restoring hypothalamic and peripheral receptor sensitivity to the effects of cortisol and other adrenal hormones.

Siberian ginseng stimulates the adrenal gland. Sarsaparilla (*Smilax officinalis*) contains precursors to progesterone and testosterone. *Rhodiola* can help improve erectile dysfunction and premature

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ejaculation in men. Rhodiola activates fat breakdown and mobilizes fat from adipose tissue.

Rose hips and Hawthorne berries contain high levels of Vitamin C and bioflavonoids. The adrenal gland is one of the highest utilizers of Vitamin C in the body.

Adaptogens allow the body to respond to stress with lower amounts of cortisol than may otherwise be needed. Adaptogens help the adrenals recover more quickly.

Steps To Take For A Normal Balanced Cortisol Rhythm

1. Go to bed by 10 p.m.
2. Eat breakfast by 7 a.m.
3. Eat low glycemic index meals every five hours while awake.
4. If you eat gluten grains, use sprouted whole grains.
5. Avoid sugar and excess starch.
6. Maintain erect posture and avoid prolonged periods of sitting or flexion posture such as fetal position during the night. (See "How to Age Rapidly - or Not," in my "Doctor's Corner," for NOHA NEWS, Winter 2002.)
7. Control pain.
8. Manage emotional stress. Following the first seven guidelines allows us to respond with more stamina and less stress to the challenges of daily life.
9. Confer with a health practitioner familiar with hormone function and therapies that help correct cortisol rhythm.
10. Meditate daily. Know that each of us prays without ceasing. Discover anew that every thought and every word is a prayer. Keep in touch with the True Source of health and healing.

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Conclusion

Establishing and maintaining a normal circadian rhythm of cortisol is a worthwhile health priority.

Normal cortisol rhythms would go a long way toward tipping the balance away from chronic infections, cancer, fatigue, and obesity. It will even help with easy bruising and stretch marks. Quite importantly, achieving a normal cortisol rhythm may change dragging out of bed in the morning to bouncing out of bed.

A relentlessly positive attitude will do more for your health than any fretting and fuming – even about diet. Smiles to you!

Books of Interest on Related Topics:

Adrenal Fatigue: The 21st-Century Stress Syndrome by James L. Wilson, Petaluma, CA: Smart Publications, c2001.

Dangerous Grains: Why Gluten Cereal Grains May be Hazardous to Your Health by James Braly, MD, Ron Hoggan, MA, Avery Publishing Group C2002. See the review in the Spring 2003 NOHA NEWS, pages 9-10, "DANGEROUS GRAINS."

Living Well with Chronic Fatigue Syndrome and Fibromyalgia: What Your Doctor Doesn't Tell You ... That You Need to Know by Mary J. Shomon, NY: Quill, c2004.

The No-Grain Diet: Conquer Carbohydrate Addiction and Stay Slim for the Rest of the Your Life by Joseph Mercola, DO, Alison Rose Levy, Dutton Books, c2003. See the review in the Summer 2003 NOHA NEWS, pages 9-10, "LOSE WEIGHT-GAIN HEALTH."

Seeds of Deception: Exposing Industry and Government Lies About the Safety of the Genetically Engineered Foods You're Eating by Jeffrey M. Smith, Fairfield, IA: Yes! Books, c2003.

Share with me the names of your favorite books and authors who truly inspire you and refresh your soul.
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