# Rewiring The Leptin Rx Reset

## Readers Summary

1. What is evolutionary strategy based upon?
2. Why is circadian biology critical?
3. How does circadian biology react in normal environments?
4. How might disrupted circadian biology lead to cancer?
5. What might you consider adding to The Leptin Rx Reset Protocol?

**Evolutionary strategy is based upon finding an environmental niche and exploiting it.  Evolution is based upon change and the natural adaptations to it.  Today, we are going to explore how some environmental triggers might open a "biochemical trap door" that will allow me to add a new recommendation for you to consider adding to the Leptin Rx reset protocol for those who are LR.**

I am beginning a series on circadian biology to show you how this all ties in together. Today, I will give you a very cursory review of why circadian biology, leptin, and environment are critical to using the Quilt to obtain your Optimal life.

# Why is circadian biology critical to humans?

For evolution to work Optimally, a cell first must adapt to its environment. The first situation any living cell would be subjected to in an earth day is a period of day and night. Over time it would also be subject to the seasons in our environment because of the earth's revolution, tilt, and angulations of the sun. As time continued on, further life would have been subjected to solar variations and would have

had to account for it. It also has to find food to make energy (ATP) to survive, and it also has to control its own cellular division. The epic battle for the cell is to have the regularly expected circadian cycles found in our environment and ”yoke” those signals to its metabolic cycle and to its growth cycle. Most people know that the suprachiasmatic nucleus (SCN) in the brain is where the circadian pacemaker lies in humans. It monitors this dance between darkness and light, and the seasonal cold and hot temperatures in our environment to help control and monitor our own growth and development. Evolution apparently agreed to use these signals in all living things because this is what it uses for all life on earth today. What most people do not know is how leptin plays a massive role in regulating it. Many people and physicians think it plays a small role. Recent research has revealed that leptin can induce expression of a neuropeptide called vasoactive intestinal peptide (VIP) through the VIP cytokine response element. This is an epigenetic modification from our environment directly signaling the master hormone in our body. So what does VIP actually do?

VIP actually is what sets the circadian pacemaker to the light cycles. This enables Leptin to then yoke metabolism and sleep directly to the light and dark cycles of our day. So what happens when light levels are not strong during seasons? When temperature becomes the dominant environmental trigger and not light cycles, leptin induces endothelial nitric oxide synthetase (eNOS) that shuts down the photic effects of VIP on the SCN. This means that leptin uncouples the SCN to be unable use light as the main stimulus to yoke circadian cycles. Once temperature becomes the dominant method of entrainment used to yoke the circadian rhythms to leptin, some very unique things happen to our biochemistry that normally do not occur in other environments. These are ancient epigenetic programs that are hardwired into the DNA of every descendant of any eutherian mammal on this planet. We are descended from these animals as

well.

## So what happens in normal environments you ask?

When it is night time, the interior of our cells become more reduced chemically and electrically. (A lower redox state like we saw in the mitochondrial series). During a low redox time cells are usually recycling their components using autophagy during sleep. During the day while energy is being made to explore the environment the cell is more oxidized because of increased leakiness of the mitochondria at cytochrome one. Remember the more we leak electrons from our mitochondria, the faster we age and the more neolithic diseases we succumb too. Another interesting coupling occurs between the circadian cycle and with the cell cycle. They are linked together via the PER 1 and PER 2 genes. PER 2 directly affects the cell cycle when the cell divides. Cell division is called mitosis. Mitosis is the phase in the cell that occurs just before cell division to generate an offspring. The mammalian period 2 gene plays a key role in tumor growth in mice; mice with a mPER2 knockout show a significant increase in tumor development and a significant decrease in apoptosis. It should be clear because of these links that just a simple mismatch in circadian cycles can lead to the development of cancer and neolithic disease. Circadian biology is crucial to Optimal health.

## How does cancer occur when the circadian cycles are off?

Many people seem to be unaware that just living a life in-congruent to light and temperature cycles set us up for neolithic disease. The reason is quite simple. Immunity has been show to be directly tied to the normal circadian

clocks. Proof of this is found in animals who are sleep deprived excessively tend to die of sepsis. It is also the reason why those with sleep apnea suffer from multitudes of neolithic disease. We are going to explore that this year.

**Is it possible that a serious deadly neolithic disease could be linked to poor sleep or to an altered normal human circadian cycle for any reason?** The short answer is absolutely yes, it can be. This is thought to be caused by mPER2 circadian deregulation of common tumor suppression and cell cycle regulation genes, such as Cyclin D1, Cyclin A, Mdm-2, and Gadd45Î±; as well as the transcription factor c-myc, which is directly controlled by circadian regulators through E box-mediated reactions. It is fine if you do not know all the detailed biochemistry here, but it is critical for you to know what the consequences are to your body if you allow your neolithic life to subvert your paleolithic genes. The consequence over time could kill you. It sounds hard to believe until you see the research papers showing how circadian mismatches lead to cancer, diabetes, and heart disease. The key is that these epigenetic environmental signals cause our DNA to malfunction when there is a problem between leptin (master hormone) and circadian cycles. This means that sleep is tied directly into to cell cycle functioning and directly into cell mediated immunity by evolutionary design as well. This is why heart attacks also show a strong circadian cycle tie to early AM occurrences because this is when cortisol levels are highest. It appears this is the signal for plaque rupture. Research clearly shows that mammalian immunity is destroyed when sleep is destroyed. It appears that sleep apnea directly affects the chronic diseases of aging and likely plays a role in cancer development as well.

# Should we consider adding another step to The Leptin Rx Protocol?

**What about cold environments make them different for our biochemistry?**

Okay, it's time to hurt your head with a little biochemistry.

Normally in leptin sensitive humans, higher levels of leptin lead to increases in cortisol levels when we eat, and they decreases leptin levels when we are in a fasted or calorie diminished state. If we overeat, it leads to excessive levels of leptin and cortisol. If we starve (or anorexia), cortisol levels also become excessive. Both of the pathways with high cortisol levels lead to high levels of reverse T3, and inactivation of the thyroid of thyroid hormones to work optimally. In fact, T4 and T3 are competitive inhibited when cortisol levels are elevated. So replacing those low levels does nothing to improve the thyroid situation. You must alter the elevated leptin or cortisol levels to make any head way in your condition or on your labs to get to optimal. When the thyroid is shut off, thyroid stimulating hormone (TRH) inhibits food intake, which acts downstream of the leptin-melanocortin pathways in the brain. So how can we flip a switch to lower leptin and cortisol at home without a doctor?

When our environments become very cold, it induces humans to release leptin from fat and lowers its levels very abruptly. It also induces the formation of brown fat from white fat. This occurs by a specific epigenetic programs controlled by temperature and hormones. Cold environments also lower inflammatory cytokines, which lead to lower cortisol levels in patients who exist in these environments. The biggest surprise about cold thermogenesis is its affect on reverse T3 levels. In cold environments, leptin and cortisol levels remain quite low. These two epigenetic signals open the door to a metabolic pathway where the formation of reverse T3 is

not possible for the person.  This is in direct counter distinction to normal or warm environment situations which favors the formation of high levels of T3.  Many of you who test have found just how hard it is to lower your own reverse T3 on demand with diet or exercise alone.

In fact, cold environmental conditions favor the formation of optimal T3 and T4 levels.  It also activates the leptin-melanocortical pathway.  This fact alone allows us some amazing abilities that I will explore in 2012.  I plan on discussing this in detail in May of 2012 on Jimmy Moore's cruise if you're interested in coming.  This pathway is not used often by humans these days.  Cold favors the formation of alpha MSH, beta-endorphin, and optimal ACTH levels via its action on the POMC proteins produced in the hypothalamus.  Cold forces elevations of TRH release to serves as a controller of mammalian body temperature because cold exposure leads to rising levels of TRH and thyroid hormones to stimulate thermogenesis at muscles via the uncoupling proteins.  I know many of you do not understand the complex biochemistry and honestly, it's not that important to implementing this and having an actionable plan. But I promise in 2012, I will teach you how to use these amazing programs built into our DNA to take you to places you might have never seen in your life. I have been working at this process myself for the last 18 months, and I believe I have it down to where you, the readers, can begin to use it to your benefit. In January 2012, I performed an epic bio hack on myself to reveal just how powerful the effects of cold are on leptin and our biochemistry. I am now employing this clinically in certain situations that call for it.

## The induction of TRH by cold is a major benefit to The Leptin Rx

# Protocol.

Many obese people struggle with low thyroid function. Many people hit plateaus because of hypothyroidism. Cold environmental triggers can reverse this situation. Many people are surprised to find this out, but the basis of this is found in diabetes. All true mammals that hibernate use insulin resistance to be the signal to signal them to den. The cold environment is what reverses their insulin resistance during their sleep, and they emerge from their den no longer diabetic or insulin resistant. This is a game changer for those with T2D. This is a completely inducible program that is epigenetically wired into human DNA. If we alter the environment we live in, we might be able to reverse metabolic syndrome while raising adrenal function and thyroid function without any exogenous hormone modification at all!

Best of all, the Leptin Rx could not work well on those with previous gastric bypass surgery that disconnected their vagus nerve from their guts. The use of cold thermogenesis renders that exclusion null and void now. The same is true for those on the injectable HCG protocol. Cold thermogenesis works to rewire the hypothalamus, even when the vagus nerve is not optimally functioning. This has some major benefits to patients who have special issues or needs that the Leptin Rx does not address now. If you add this factor of the Leptin Rx, it will advance your results rather dramatically as well. Cold induces a program in us that does not use the vagus nerve at all to help rewire us using neuroplasticity.

Cold induction is the next evolutionary step of the Leptin Rx and it is what I call Factor X in 2012. In 2012, we will explore how to exploit this to demolish your plateaus and light you on fire to get to optimal.

Soon, I will be getting deep into circadian biology and explaining some of the complex biochemistry for those of you

who want to know how this process is activated and works in the human body. I will also begin to tell you how to use cold to force your brain to rewire to help your own biology and break plateau’s to get you to Optimal.

You can begin to transform tomorrow by rewiring your brain today!

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# More Support: Webinars by Dr. Kruse

- Factor X (May 2012)

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# Additional Resources

- Leptin Reset Easy Start Guide
- My Leptin Prescription
- The Quilt
- What Powers Life and Death?
- The Cold Thermogenesis Protocol

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