

# HOW TO AGE WELL NATURALLY (IN SPITE OF MODERN MEDICINE)

## Part 2.

by

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I'm glad you requested my multi-part report here. I think it's chock full of great information for you. Look at it as a do-it-yourself guide to aging well.

Enjoy!

All the best in natural health,

**Dennis**

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## DISCLAIMER

The FDA requires all sources of education regarding your health to be accompanied by a disclaimer. It goes something like this:

*The purpose of this information is to increase your knowledge about wellness and how to achieve it naturally. It is not intended as medical advice and it is not meant to diagnose or treat any individual's health problems. You should not discontinue any course of medical treatment or undertake any new treatment without first consulting your own healthcare practitioner.*

Yeah, right - good luck with that.

After all, the FDA is a rogue government agency accountable only to Big Pharma. It is not your friend.

Nevertheless, you should know I am not a medical doctor and I do not provide medical advice.

You, like me, may already consider FDA-approved drugs, surgeries, and other short-sighted and destructive medical treatments (e.g., high-energy radiation therapy) as desperation measures of last resort.

If so, regarding your choice of physicians, the best starting point is generally a naturopathic medical doctor or other health practitioner who has been trained in **natural approaches** to health based on actual human biology.

# Part 2

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## DAY-NIGHT LIVING

Humans, like many other animals, are **diurnal**. That just means we're adapted to an alternating day-night cycle recurring approximately every 24 hours.

Scientists have a pretty cool name for this pattern: it's called our **circadian rhythms**.

Basically, it means we're awake and active during the day and asleep and inactive during the night.

As simple as that description may seem, there's a whole lot of shakin' going on behind the scenes.

Every aspect of your health depends on matching your lifestyle with your innate circadian biology.

***Virtually all of the most important choices you can make about your health revolve around living a circadian lifestyle.***

In contrast, disruptions of circadian rhythms lead to disease and accelerated aging.

Nothing like this is taught in medical schools. Your doctor most likely knows nothing about it (except perhaps from a basic biology class in college). Advice about it is absent from mainstream medicine.

Conventional medical 'wisdom' is rightly concerned with such things as variations in core body temperature, brain wave activity, hormone production, blood pressure, and cell regeneration.

However, such concerns don't extend to understanding how circadian cycling influences each and every one of those health factors.

Many more processes rely on proper circadian cycling. These just represent a very important tip of the 'timing' iceberg.

**SIDENOTE:** The 'circadian-free' experience with your recommended annual Medicare physical exams may be a lot like mine. I only see a physician's assistant, never the doctor. The in-room exam consists of first taking my weight, pulse, and blood pressure. Then, after a while asking me to repeat a set of five items given at the beginning of the exam (this must be some sort of dementia test), followed by answering a series of questions about my general health and whether I smoke or drink, telling the PA what drugs I'm on (who always looks at me incredulously when I say, 'none'), and ultimately taking a blood sample for the 'freebie' lab tests Medicare pays for.

The oddest question I get is about when I had my last colonoscopy. I get some raised eyebrows when I answer '1990' - and that I'll never do it again. It's an odd question for me because I had my colon removed in 1991, which is a factlet my doctor's clinic seems to forget every year.

Then, a few days after my in-clinic exam, I get my lab test results, either emailed to me by the lab or posted on my portal. I don't hear anything else if everything is within normal ranges.

I did get call backs three different times. The purpose of one was to get me to worry about my 'high' cholesterol (which was a perfect 185 mg/dL at the time; my BS detector really rang out on that one). Another was a supposedly low vitamin D level (taken in January, with no

acknowledgment of how such levels bottom out in winter; my result was fine [37.7 ng/mL], and it rose [to over 47 ng/mL] the following summer. An elevated TSH (thyroid-stimulating hormone) led to the third call (although nobody asked me whether I was taking an iodine supplement [which I am], which is known to cause TSH levels to rise).

After all that, still never a word about circadian cycling.

### **It's All About Timing**

Putting everything together about circadian rhythms means your body is always on the clock. In fact, when it comes to your health, ***circadian timing is everything.***

We actually have specific genes for regulating daytime vs. nighttime physiology.

And, get this ... scientists have named them **clock genes**. How cool is that!

Every cell in your body with a nucleus has them. If they made sound, you could hear them ticking all over your body **all the time**.

The 'loudest' ones would be skeletal muscle cells ("muscle fibers"), since they have many potential genetic 'noisemaking' nuclei per cell. They're followed by certain types of cells in your liver and bones.

The 'quietest' cells would be red blood cells, since they contain no nuclei and therefore no clock genes. (Now there's a bit of trivia to impress your friends with!)

**SIDENOTE:** Malignant tumor cells might be the loudest kinds of ticking-clock cells, since they're packed to the gills with nuclei. Tumor cell clocks would make a lot of noise due to the cacophony of their out-of-control clock genes. This partly explains why modern treatments for malignant cancers are mostly unsuccessful. Tumor cells are so 'noisy' they drown out the normal activity of functional clock genes. The result is super-fast, uncontrolled growth that responds poorly to modern cancer treatments.

As fancy-dancy as all that sounds, clock genes don't have a beat all their own, like an actual clock. They do, however, depend on battery power, controlled frequency oscillators, and step motors just like a nice quartz-crystal Rolex does.

The difference is, of course, your internal clocks are all based on basic biology, not on a high-end Swiss watchmaker.

Specifically, circadian cycling starts with a *master control clock* located deep in your brain.

The jargon-y name for that master clock is the **suprachiasmatic nucleus (SCN)**. In spite of its relatively tiny size (only ca. 20,000 cells), it's responsible for keeping all other cellular clocks throughout your body on time.

That's potentially trillions of cells - all under control by the SCN.

### **How Do You Set Your Body Clock?**

While all that 'theoretical' stuff may seem interesting (to me, anyway), how do you apply it?

In other words, what can you do to keep your master clock on time so it can keep all your other cellular nanoclocks on time and working for your benefit in the rest of your body?

The 'day-night' part of circadian rhythms provides an excellent clue: daytime and nighttime are the 'source' signals.

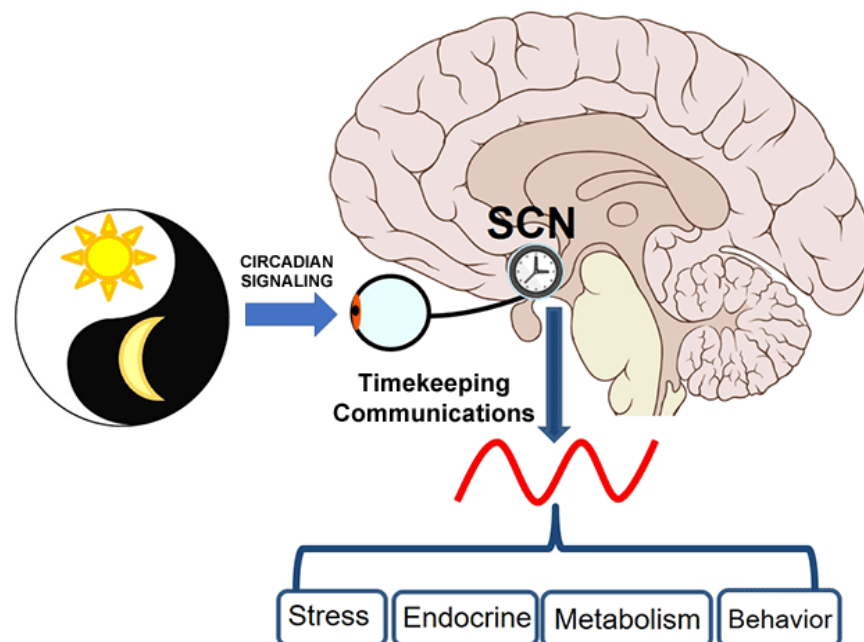
And the main external 'receiver' for those signals is your eyes.

Light (or dark) signals enter through your eyes. They hit special cells in your retina, which transduce those signals into timed molecular pulses in your SCN.

I'll stop with the gnarly details for the moment since they're probably a little too geeky for you.

Instead just take a look at the following diagram. It shows a simpler summary of what all that light/dark signaling looks like in diagrammatic form.

## YOUR BRAIN'S MOLECULAR CLOCK





During the day, light goes into your eyes, where the optic nerve carries 'light' signaling directly to your SCN.

During the night, the optic nerve instead carries an 'absence of light' signal directly to your SCN.

Signaling during each period then 'tells' your SCN to send the proper timekeeping communications for running the rest of your body, including your brain.

As the diagram points out, this is how your SCN influences everything from your stress responses to regulating your endocrine hormones, your basic metabolism, and even your behavior.

Mapping out those timekeeping communications shows a series of circadian responses over every 24-hour period.

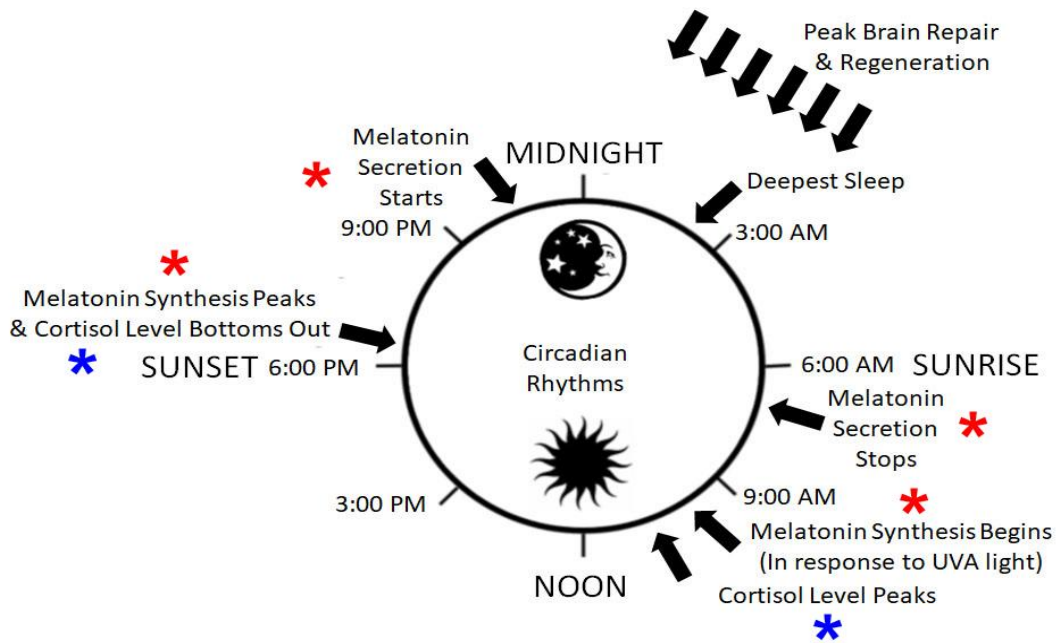
These are the responses your health depends on.

The 'map' could include hundreds of responses. However, to keep things simple, the following diagram depicts two of the more significant ones.

They entail the key sleep-wake hormones, **melatonin** and **cortisol**, and how they respond to circadian cycling.

(See the red and blue asterisks on the next image.)

I'll have more to say about those hormones in the next section, *Summary of Action Steps*.



Properly setting the clock, therefore, simply requires you to get the right signals at the right times during every 24-hour cycle.

That just means living in light during the day and in the dark at night.

That's it!

This is what our Paleolithic ('caveman/cavewoman') ancestors adapted to. This is how those modern nonagenarians and centenarians in long-lived cultures still live.

People living circadian lifestyles in those so-called 'Blue Zones' represent positive healthspan outcomes from circadian living.

So, first and foremost, a good healthspan depends on living the circadian lifestyle humans evolved to live.

By the way, we can learn just as much from folks on the other end of the spectrum - i.e., those who live a circadian-*mismatched* lifestyle.

Who would want to do that?

Think about shift workers. A whole pile of good research shows how shift workers, as a group, are some of the sickest and shortest-lived people in our culture.

They typically work something like an 11:00 PM to 7:00 AM shift, then go home and sleep (maybe after an early morning 'dinner', which makes the circadian mismatch even worse).

Typical Americans still aren't off the hook, even if we don't have a nighttime job. While we may not be shift workers, many of us spend a great deal of time well into the night under artificial lighting.

The net effect is to extend the period of daytime signaling to the SCN and to shrink the period of nighttime signaling.

It throws all clock genes off their game and creates metabolic havoc leading to disease.

***And it's a major source of accelerated aging!***

It doesn't take shift work to make that happen. Merely staying up late will do the same.

Unfortunately, compared with our Paleolithic ancestors, that's what almost all of us do. If you're even slightly night owlish, then you're inviting health problems due to self-induced circadian disruptions.

I wish I'd known about this sooner. I got through college, then graduate school, then the tenure-earning period all university faculty must endure, based on all-nighters in my lab or office. It worked fine for

professional advancement. It did not work well for my health.

### **Summary of Action Steps**

Your best bet would be to get up and around as soon as the sun rises, capitalizing on the health benefits of sunshine as explained in Part 1.

Then head to sleeptime soon after sunset.

That's the pattern we inherited in our clock genes from Paleo humans (and even earlier diurnal mammalian ancestors before that).

Of course, unless you're a hermit living on a mountain, this pattern isn't practicable in modern times.

The issue has instead become how close to the following pattern you can live every 24-hour period of your life. Even if you're awake after sunset, you can still approximate it by embracing the dark.

Your goal is the proper regulation of melatonin and cortisol.

As the next image depicts, this means levels of your 'daytime' hormone, cortisol, increase quickly in the morning and slowly decrease throughout the day.

And, unless you're artificially stimulating cortisol levels (e.g., due to nighttime exposure to artificial lighting), its levels should bottom out as the evening proceeds.

In contrast, your melatonin levels should peak out in the middle of the night, then disappear by early morning. Again, unless you live under artificial lighting at night, which destroys melatonin.

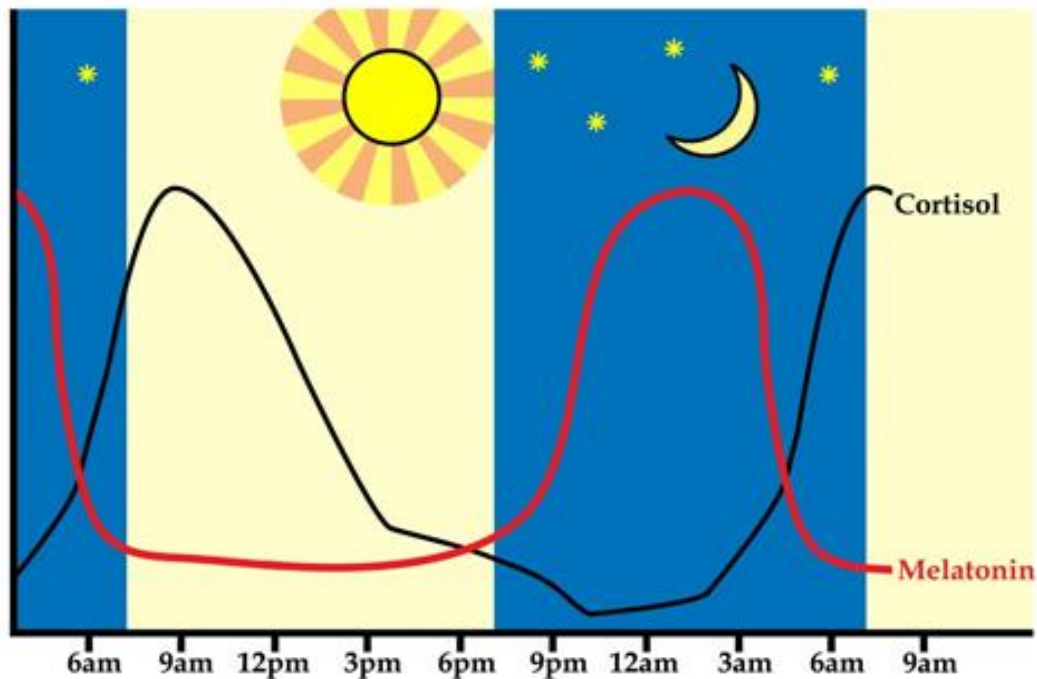


Image credit: Manganaro et al. 2017. *Need for Antiepileptic Drug Chronotherapy to Treat Selected Childhood Epilepsy Syndromes and Avert the Harmful Consequences of Drug Resistance*. J Cent Nerv Syst Dis. 9:1179573516685883.

Note that, although melatonin is often referred to as the 'sleep hormone', its synthesis begins in your brain's pineal gland in the morning, upon the stimulus of daylight. Peak synthesis occurs right after sunset, allowing for its release to begin around 9:00 PM and continue into the night.

On the other side of the day-night coin, cortisol is made in the adrenal glands, starting just before sunrise.

Cortisol is classically referred to as the 'fight or flight' hormone because its levels rise quickly in response to stress. It's the response our ancestors needed instantaneously for escaping nasty predators such as sabertoothed tigers *inter alia*.

Of course, all the sabertoothed tigers I know of are still stuck in the La Brea Tar Pits in southern California. They've been there for thousands of years. So this technically shouldn't be an issue for modern humans.

Unfortunately, today's living is replete with 'surrogate sabertoothed tigers' (yeah, I made that up) - i.e., plenty of sources of stress leading to chronically elevated cortisol levels. That's a big bugaboo all by itself, a topic I'll shelve for the time being.

What's not so clear about cortisol, at least in the public's mind, is its normal circadian release pattern.

If all goes well, it's supposed to begin its appearance just before sunrise, reach peak levels by mid-morning, then slowly ebb all day until bottoming out before melatonin levels start to rise in the evening.

For that reason, cortisol is more than just the 'fight or flight' hormone. It's also the 'get your fanny moving in the morning' hormone.

Two factors about cortisol levels come to the fore. The first is its rise when you're up and active as soon as the new day begins - i.e., early morning.

The second factor is its dropoff when you shut down all daytime activities once you're in the dark after sunset.

That's the simplest way to put it. However, there are still some additional choices to adopt for optimal circadian cycling. These other choices highlight how you live during the day vs. during the night.

## NOW WHAT'S NEXT FOR YOU?

Parts 1 and 2 of my report have still just scratched the surface. There is yet **sooo** much more to know and do for aging well naturally.

The most obvious next steps for you include digging into Parts 3 and 4. Then you'll have the most complete foundation for adopting all four of the most important strategies for being healthy for a long, long time.

So keep it up. As I've said before, constantly learning about and applying the principles of good health based on real human biology (as opposed to drug-based modern medicine) requires vigilance.

I'm even more gratified and amazed you made it this far.

If you haven't yet become burned out by all my geekiness, you're in store for some more goodies in Part 3.

It should be arriving in your inbox no later than the day after you received Part 2.

## REMINDER ABOUT QUESTIONS OR COMMENTS

If my wife is correct (Ha ... of course she is!), my science-y explanations can be a bit too technical.

So I'll remind you once again to feel free to let me know if you have any questions or comments about this report. My direct email address is:

[boomeerhealthcenter@gmail.com](mailto:boomeerhealthcenter@gmail.com).

I usually check it for messages at least once a day.

**STILL BETTER YET.** As I've said before, I'm not a huge fan of 'anti-social' and 'socially-invasive' media (still being cranky). Nevertheless, they can still be useful tools when used properly.

That's why I mentioned before that I've set up a special page for our 'longevity' community on Facebook, here: [Boomer Health Center](#).

I think it's the best place for interacting with me and others who have the same goals for healthy aging.

So, by all means, please visit us and join in. Facebook will also help things along when you 'like', share, and comment on the page. (That seems nonsensical to me, although that's how the 'system' works.)

I hope to see you there!

Unless I'm taking my weekly 'tech-free' day, which is usually Tuesday (out with my golf buddies, the WHOFs [White-Haired Old Farts]).

Once again, I wish you all the best in natural health,

**Dennis**