

## Jet Lag

Scientifically, “jet lag” is known as circadian dischronism. We all know it makes you feel ‘off your game’ for awhile and disrupts your sleep, but here is a closer look at what causes it.

Circadian rhythms are a collection of various hormones released at specific times throughout the day. The main biological clock that regulates these rhythms is in the suprachiasmatic nucleus of the hypothalamus, in the midbrain. Its function is to ensure each hormone gets released at the proper time. These hormones control alertness, sleepiness, mood, pain threshold, energy level, body temperature, and sex drive.

For example, if you normally go to bed at 11 pm, your brain releases melatonin around 10:30 pm and your body temperature drops in preparation for sleep. At around 4 am your body reaches its lowest temperature. Then, to prepare for your day, your body releases cortisol, a stress hormone, around 6 am, and adrenaline a short time later.

When you travel by plane and fly faster than the rotation of the earth - particularly flying against the direction of its rotation, your body is forced into a transient state where you experience mental and physical cellular chaos as your body rhythms reluctantly break the old daily patterns and struggle to shift to a new time zone. This shift causes a major disruption in the synchronization of the time-keepers and body rhythms that keep your heart pumping to one beat while your lungs inhale and exhale to another. The normal signaling that releases enzymes and stomach acids in anticipation of food, put you to sleep at night, wake you in the morning, and control the timing of every function of your body - right down to the cellular level are all affected.

Scientists describe this as “a transient state of dyschronism”. It’s the period of time during which the body re-calibrates its biorhythms in an attempt to adapt to a different time and place.

Here are the typical re-synchronization periods (in days) after a 2-hour time zone change flying east:

<b>Performance (psychomotor)</b>	<b>3 days</b>
<b>Reaction time (vigilance)</b>	<b>1-2 days</b>
<b>Heart rate</b>	<b>2 days</b>
<b>Corticosteroids (urinary)</b>	<b>4 days</b>
<b>Noradrenaline (urinary)</b>	<b>1 day</b>
<b>Adrenaline (urinary)</b>	<b>2 days</b>
<b>Bowel movements</b>	<b>3 days</b>
<b>Body temperature</b>	<b>3 days</b>
<b>Sleep pattern</b>	<b>1 day</b>



## NuCalm - Pilot Observations

Pilot Profile – subject is 46 years old; professional pilot for 23 years; over 17,000 hours of flight time; currently is a pilot for a private jet; flies LA to Sydney to Tel Aviv to LA two times per month and flies domestically several times per week.

“Jet lag is an occupational hazard and one of the most difficult aspects of being a pilot. We go to work after crossing many time zones tired and fatigued. Our body is operating off of adrenaline during critical phases of flight despite being completely drained and fatigued. It’s dangerous and compromising.

What it comes down to is that with jet lag and fatigue you’re not thinking clear. You’re tired; you’re at the end of a flight doing one of the most critical phases that is a risk to not only your passengers, but also people on the ground. That’s when you need to be at the top of your game and you’re just not.

The first time I tried NuCalm I had just come off a twenty-two hour flight and my mind was racing. I had many things to do and was only in town for two days before I had to fly back to Asia. The doctor who turned me onto NuCalm said, “put this on and relax.” I had no idea what it was, but as I sat there I just felt like a light switch. I was completely calm and at the end of NuCalm I just wanted to chill the rest of the day. I wasn’t stressed, I wasn’t in this mode where, go, go, go, get everything done. My mind was clear.

With NuCalm I’m able to come down to a deep level of relaxation and be stress free.

Before NuCalm, when I would come home it would take me a minimum of three days to recover. I would sleep in the middle of the day, I’d be up in the middle of the night and I would get sick fairly easily. Any kind of sniffle, I knew that my immune system was low and I would instantly be sick. I’ve noticed that in the last three years of using NuCalm I haven’t been sick at all. When I go home from a trip I’m recovered within the day I arrive. Jet lag is completely eliminated for me. I can instantly go right in as a normal person that hasn’t crossed twelve time zones over the last seven days and live a normal life.”

NuCalm alleviates the stress of jet lag and quickly restores order to your body rhythms and timing mechanisms. A 45-minute NuCalm session is proven to restore homeostasis of the autonomic nervous system and quickly reset your biological clocks, even after crossing multiple time zones.



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