

# Avoiding Jet Lag

## An In Depth Guide to Hacking the Stressors of Travel



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**Summary**

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*An esoteric health guide that is written in great detail to discuss the health “hacks” I personally use when traveling on trans-continental or even domestic flights. The information in this guide goes above and beyond what you NEED to know in order to feel better during travel, but I want to make sure you fundamentally understand WHY each modality works. The tips in this guide can be applied to other “stressful” situations/environments in your life as well.*

*Thank you for supporting my education work. I hope this empowers you to become a more resilient and productive individual.*

*Stay Sovereign  
-Tristan*

## Part I: Why is Travel Bad for Us?

In order to understand how to mitigate the negative side effects of travel, first let's dive into why traveling is bad for us in the first place. Let's start with what I mean by "traveling". Traveling can be anything from catching a bus, plane or even boat. It can be traveling 1.5 hours or 32 hours. You can travel 25 hours and not change time zones, or travel 8 hours and drastically change time zones. All of this context matters. Here's why:

### Changing Time Zones

A drastic change in time zones is without a doubt the most disruptive aspect of traveling. When your body's circadian rhythm (AKA body clock) is disrupted, a whole slew of downstream chaos ensues. Why is that? Because your body is governed off of this circadian clock, which dictates hormonal cycles such as melatonin and cortisol to provide you the ability to have restorative sleep and wakefulness. Melatonin is also one of the body's master antioxidants, and actually dictates many of the functions in your mitochondria. If you aren't familiar with mitochondria, it is where 90% of your energy is produced...and where 95% of the Oxygen you breathe is utilized, in the process that creates ATP.

Inherently, a disrupted circadian rhythm →irregular melatonin/cortisol cycles→worse sleep, less wakefulness, less efficient mitochondria→less neural restoration, less energy, less vitality → higher instance of chronic disease (over time)

***“We summarize recent evidence suggesting that circadian disruption may also be a predisposing factor for the development of age-related neurodegenerative diseases (NDDs) such as Alzheimer's disease (AD), Parkinson's disease (PD), and Huntington's disease (HD).”***

- <https://www.sciencedirect.com/science/article/pii/S0531556522003850>

This does not mean that one trans-atlantic flight is going to give you Alzheimer's, but it does highlight just HOW important optimizing our circadian rhythm is for optimal health and vitality. This is why when you are at home in your daily routine (not traveling) it is imperative to value this heavily. Intuitively, the more drastic of a time zone change AND the more frequently you travel...the MORE detrimental it will be to your health long term.

But traveling can be a necessity, or simply one of the most enjoyable aspects of life! That is why I have created this guide, because there are many things you can do to mitigate the detrimental effects of hopping through different time zones more often than you should. Also, do not forget the inherent value of traveling north/south over east/west. Same/similar time zones and still the ability to have a life changing experience.

Ex: Americans look to travel to Central/South America  
Europeans look to travel to Africa  
Australians look to travel to Southeast Asia/Japan

One of the biggest downstream impacts of changing time zones is your ability to get a proper night's sleep. The restoration achieved during sleep is imperative for optimal cognitive and physical function. Renowned sleep expert Dr. Matthew Walker, in his book *Why We Sleep*, discusses this at length and mentions how the body needs ONE DAY to adjust to every ONE HOUR of time zone change difference. This is quite a slow adaptation if you ask me, but if you have ever traveled internationally...you may be more aligned with Dr. Walker's perspective. I can tell you that implementing the right tactics, and having more resilient health will certainly cut this down to maybe 0.3-0.5 days for every hour of time zone change (in my opinion). This is from my experience having traveled to and from Europe many times the past 2 years (when I have been more intentional about travel hacks).

### Airports and Airplanes-Artificial Toxic Soup

Again, not all travel has to go through airports, but as we are talking about the most common experiences for changing time zones, we will focus on them here. Airports are in short, the most unnatural, prison-like, least optimal environments you could step foot in. I am not exaggerating, and that's because airports are:

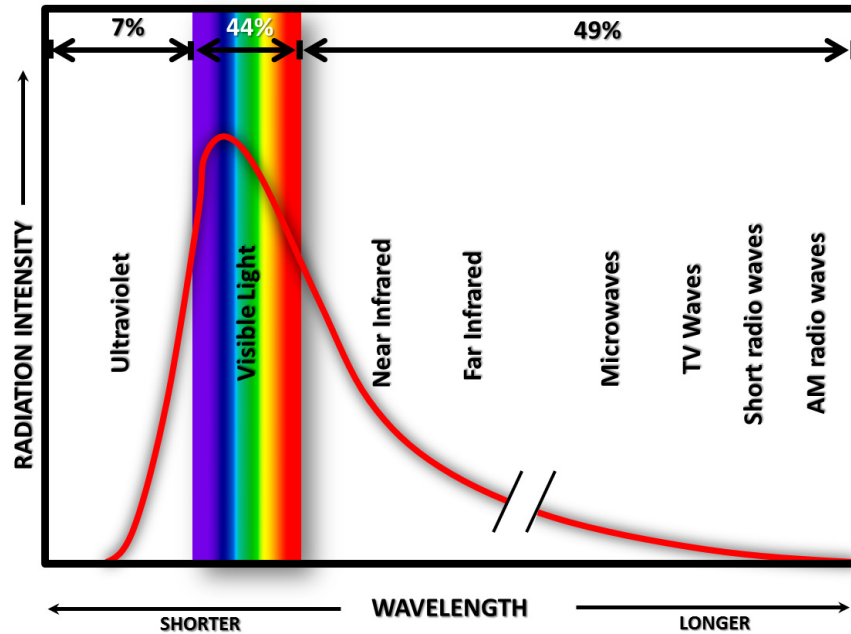
- Devoid of ANY natural light, FULL of artificial light
- Contain extremely HIGH amounts of non-native Electromagnetic Fields (nnEMFs)
- Inherently very stressful for the average traveler
- Full of the most processed foods imaginable

The combination of these items is the recipe for nuking how you feel, which is all before you even step foot on the airplane. The airplane, a floating metal bin in the sky, then leaves the surface of the Earth to put you in an even more unnatural state and continues to blast you with artificial light, tight seating (unless you are first/business class), inedible food, and the annoyance of dealing with the average members of society with nowhere to escape to. Suboptimal is an understatement.

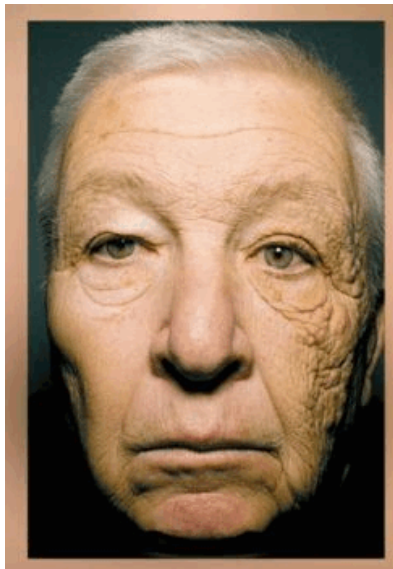
For me, the light and nnEMF environment is what really does the trick. From the same study mentioned above:

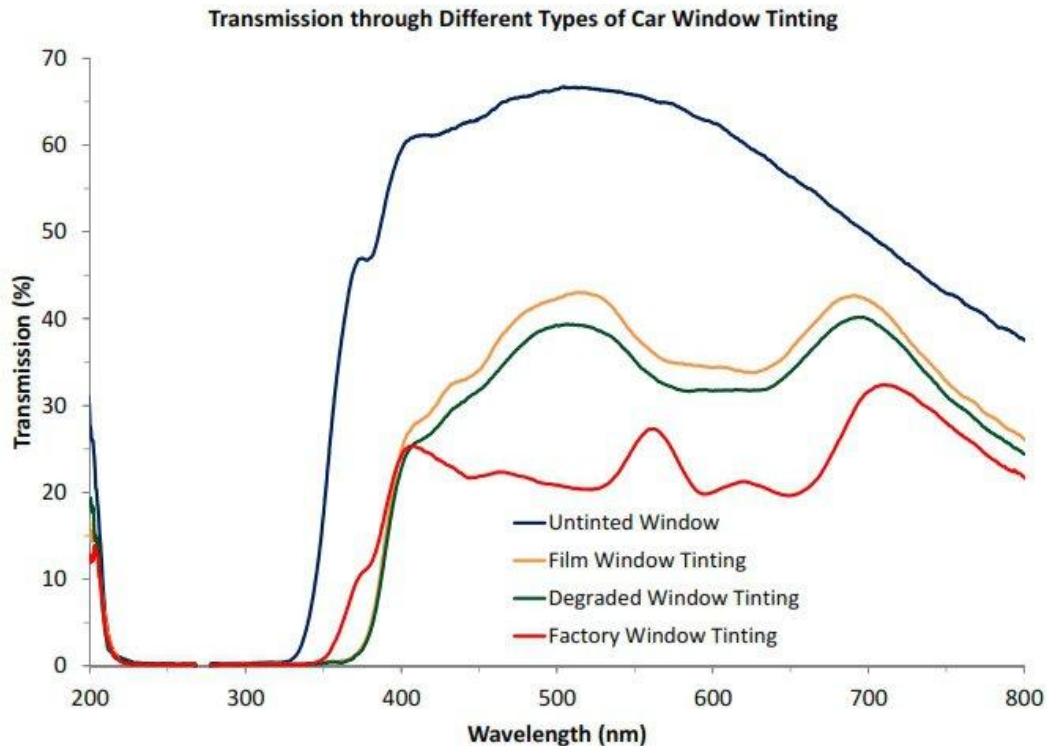
***“...inappropriate environmental conditions such as Artificial Light at Night (ALAN) can cause circadian disruption or chronodisruption (CD) which can result in a variety of pathological diseases, including premature aging.”***

Artificial light is giving your body the wrong input signal to govern its biology. We are designed to take in full spectrum sunlight, which to us comes in the form of the visible light spectrum (ROYGBIV), UVA/B, and Infrared light. **Well blue light is part of the visible spectrum, so why is it bad for us?** Blue light is toxic and artificial, because it NEVER appears in isolation in nature. Full spectrum sunlight that hits the Earth's surface after passing through the ionosphere ALWAYS has Red + Near-Infrared light present. That means the blue light never hits our eyes without a complementary (and more healing) red wavelength. Red/NIR make up ~50% of sunlight. This is why context matters.



Want another example? Glass windows. You may have seen the common picture of the “sun aged faced truck driver” (below) as a testimony to how damaging the sun and UV radiation is. Well here’s the catch: sunlight that comes through a glass window IS ARTIFICIAL LIGHT. (what??) Yes. That is because glass alters the spectrum of wavelengths that penetrate through. Glass windows typically block 90-100% of UVB, and 50-60% of Red/NIR wavelengths. What gets blocked the least? Blue light. So glass windows inherently create an unnatural Blue/Red light ratio that creates more cellular damage due to the nature of blue light.

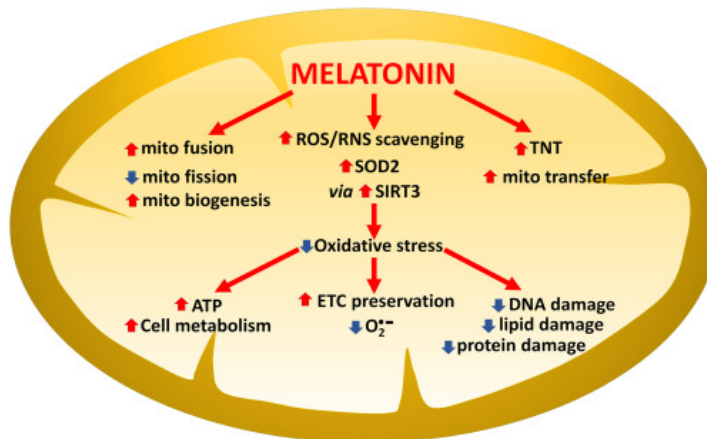




***“Further analysis of these 15 reports indicated that a two-hour exposure to blue light (460 nm) in the evening suppresses melatonin.”***

- <https://pubmed.ncbi.nlm.nih.gov/30311830/>

Artificial blue light is known best for its ability to suppress melatonin, and as mentioned in the first section, this is NOT IDEAL for reasons beyond sleep. Melatonin suppression will lead to excess free radicals and less efficient mitochondria, leading to cellular damage and less energy. Melatonin is also anti-cancer, so any regular suppression of this hormone will lead to an increased quantity of cells that remain in warburg type metabolism and higher risk for forming a tumor biomass. It can be quite easy to fall into a negative feedback loop when you regularly suppress melatonin, as the cellular damage accumulates and your restorative sleep quantity wanes, that is why an optimal light environment is so important. I wrote a nice thread on melatonin that you can read ([https://twitter.com/bitcoinand\\_beef/status/1660632171638575104](https://twitter.com/bitcoinand_beef/status/1660632171638575104)), but it does not even come close to capturing ALL the brilliant things this compound does.



***“Melatonin can regulate autophagy both directly by modulating its activity and improving the proteolysis pathway, and indirectly by either reversing mitochondrial dysfunction due to a reduction in an excessive oxidative stress, resulting in ATP production increase, or by improving ER (endoplasmic reticulum) efficiency, resulting in a reduction in the amount of misfolded proteins.”***

- <https://onlinelibrary.wiley.com/doi/full/10.1111/jpi.12534>

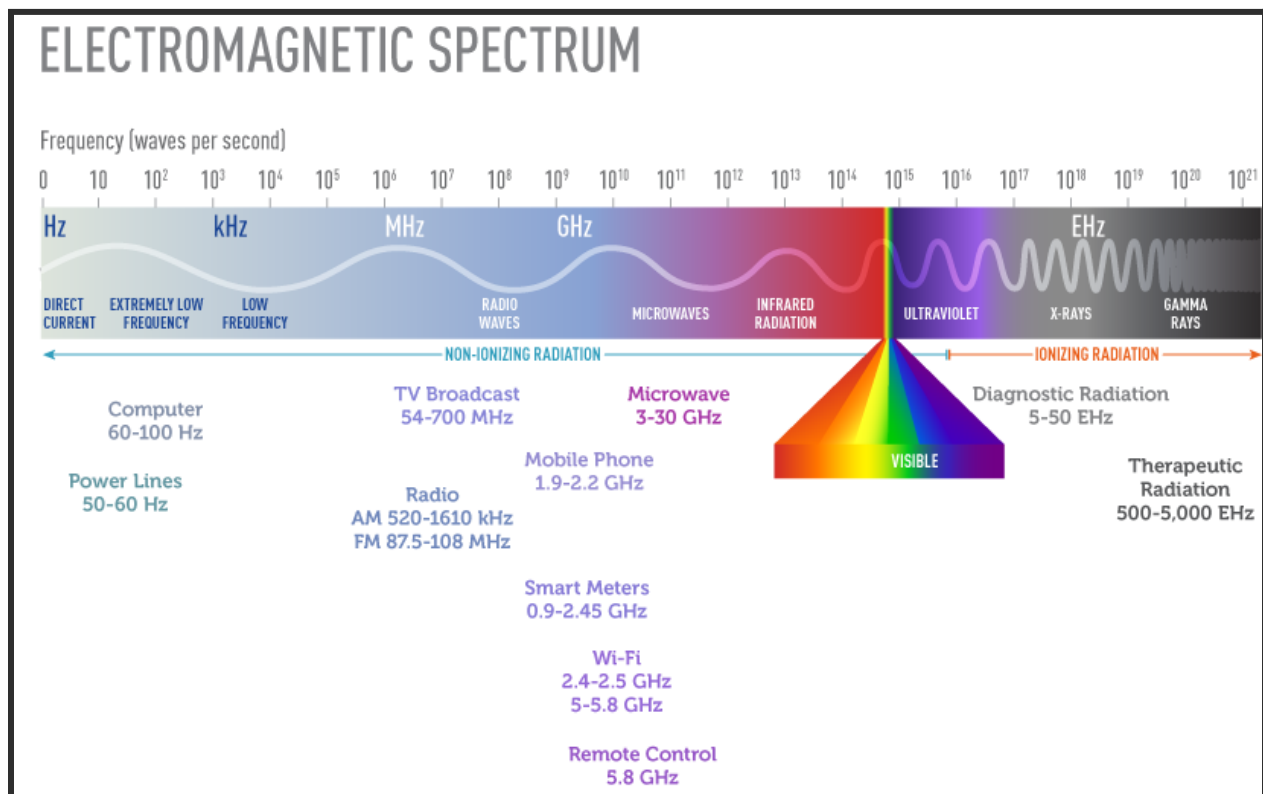
### Artificial Electromagnetic Fields

Non-native Electromagnetics Fields (nnEMFs) are in my mind the most pervasive environmental toxin in our modern world. Why? Because you can't escape them. You can mitigate exposure through various tactics that I will discuss, but they will always be prevalent and they are becoming more and more ubiquitous with rollouts like 5G cell towers. *You can filter toxic water and re-mineralize, you can stop using toxic personal care products, you can test your soil to make sure there's no atrazine changing the gender of your local amphibians, you can block blue light, you can buy plants/air filter or move out into the woods to avoid noise/air/light pollution...but filtering EMFs is far more complicated, complex and has its own negative consequences.* Before we get into why nnEMFs are bad for biology and which frequencies are most problematic, let's highlight the fact that airports and airplanes are nnEMF bombs.

Your normal city experience has very high nnEMF exposure because of high population density. It's not the people that are the problem, it's the devices, power, and communication infrastructure that is needed to support our social media addicted society. This means far higher density of wifi routers, cell phones, cell towers (3G/4G/5G), power distribution lines, transmission lines, and smart devices (eMeters, cars, appliances, etc.). The more people, the more nnEMFs, inherently. Now, think of an airport...which basically is an EVEN more dense congregation of humans with additional needs such as airport scanners, hi-speed wifi, flight and communication towers. Talk about an EMF soup. Airplanes themselves were not as bad for a long period of time, but now every flight comes standard with Wifi and even though it costs \$10-\$20 to use for many airlines you know that 80+% of people cannot go two hours without being #connected to what's going on in the world.



The majority of nnEMFs in airports and airplanes are radio frequencies (RF). RF is a range of frequencies used for communication that ranges from 3kHz-300GHz. WiFi and Bluetooth use 2.4GHz, 4G cell calls use 600MHz-2.5GHz, 5G uses 24-47GHz (quite a jump), while airport communications towers use bands in the 100MHz range. Do you need to remember all of these specific frequencies? No, it just shows the VAST range of nnEMF frequencies we are exposed to from various technologies. Alongside RF is the extremely low frequency range (ELF), which is anything less than 300Hz. Our power grid hums at 60Hz. Many RF technologies also “pulse” at far lower frequencies using pulse width modulation (PWM) signal design.



It turns out that nnEMFs from RFs and ELFs are actually pretty detrimental to biological health. The International Agency for Research on Cancer (IARC) classifies RF and ELF EMFs as “**possibly carcinogenic to humans**” (Group 2B). Not that the IARC classifications are the end all be all by any means, but that should make you pretty skeptical. Furthermore, there have been THOUSANDS of studies showing the detrimental biological effects of nnEMFs from these frequency bands over the past 50-75 years...with much of the ELF studies being done in the 20th century but many new studies coming out since the turn of the century on RF EMFs in regards to the new technology we use increasingly everyday. I want to harp on two mechanisms of action that make nnEMFs so detrimental to our health:

- 1) Increased oxidative stress (lowering redox)
- 2) Increased influx of calcium into the cell via voltage gated channels

Oxidative stress is the loss of redox homeostasis. Redox homeostasis is the eb and flow of your cells producing free radicals and combating them with antioxidants. When excess free radicals are not dealt with, cellular damage will ensue. Exposure to nnEMFs has been demonstrated to increase oxidative stress, with one review finding that 30 of 30 relevant publications since 2017 detected **“significant oxidative effects under low intensity radiofrequency radiation (RFR) exposures.”** An earlier review also looking at RF EMFs inducing increased oxidative stress found 93/100 studies demonstrated this as true. And it is not just RF, the ELF EMFs generated from our electrical grid and wall outlets also have been shown to increase production of reactive oxygen species (ROS) from low dose exposure.

***“A trend is emerging, which becomes clear even when taking these methodological weaknesses into account, i.e., that EMF exposure, even in the low dose range, may well lead to changes in cellular oxidative balance. Organisms and cells are able to react to oxidative stress, and many observations after EMF exposure point to an adaptation after a recovery phase.”***

***Adverse conditions, such as diseases (diabetes, neurodegenerative diseases), compromise the body’s defense mechanisms, including antioxidant protection mechanisms, and individuals with such pre-existing conditions are more likely to experience health effects. The studies show that very young or old individuals can react less efficiently to oxidative stress, which of course also applies to other stressors that cause oxidative stress.”***

***[-https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8038719/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8038719/)***

The “low dose exposure or low intensity” terminology is EXTREMELY important, because governing bodies like the FCC that set guidelines for things like RF use safety thresholds based on completely outdated science done in the 1980s. This is why Presidential Nominee Robert F. Kennedy Jr. sued the FCC (and won), because they were still using guidelines set in 1996 for all RF communication technology. I wrote a thread on this that you can read here (**insert tomorrow**) Mind boggling corruption. This is why you need to get educated on these topics, because the governing bodies ARE NOT looking out for you.

Back to oxidative stress. Excess and chronically excess production of free radicals and a continued state of oxidative stress is the foundational mechanism of compromised health. It keeps the cell danger response and sympathetic nervous system activated. It is the negative feedback loop that you need to break in order to heal. It is a daily battle for redox homeostasis, and one that you are FOR SURE going to lose when you are traveling unless you are diligent about some of the hacks I mention in this guide.



***“Oxidative stress plays an essential role in the pathogenesis of chronic diseases such as cardiovascular diseases, diabetes, neurodegenerative diseases, and cancer. Long term exposure to increased levels of pro-oxidant factors can cause structural defects at a mitochondrial DNA level, as well as functional alteration of several enzymes and cellular structures leading to aberrations in gene expression.”***

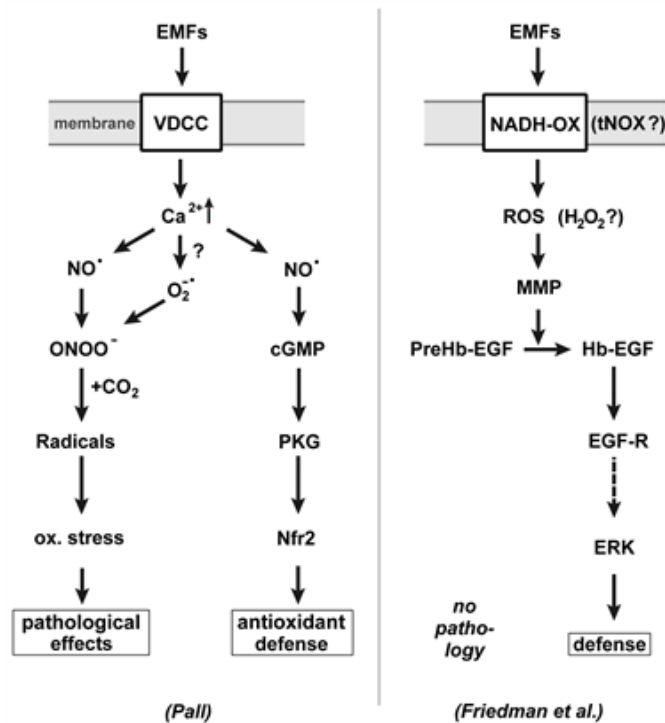
***[-https://www.frontiersin.org/articles/10.3389/fphys.2020.00694/full](https://www.frontiersin.org/articles/10.3389/fphys.2020.00694/full)***

The exact mechanism to why nnEMFs increase production of free radicals is not fully agreed upon, but that detail is something that reductionists may never quite understand. There have been some papers written about nnEMFs increasing the activity of NADH oxidase 3-fold, which then can increase ROS production, but in reality we know that it is cellular signaling interference. We are electromagnetic beings, and when we are introduced to nnEMFs at various frequencies, our cells do not communicate and produce energy (mitochondria) as efficiently. They become stressed. Dr. Robert O Becker harped on the harms of ELF's because biology operates in the ELF range as well. The earth's natural resonance, the Schuman's resonance first, second, and third harmonics is at 7.8Hz, 14Hz, 21Hz...which is quite in line with alpha (8-12Hz) and beta (12-30Hz) brain waves. This is just one example.

One mechanism that may lead to downstream oxidative stress that is proven as a response of nnEMF exposure in increased intracellular Calcium (Ca<sup>2+</sup>). Calcium influx into the cell is the proof in the pudding that our body is stressed and in cell danger response mode, or the negative feedback loop of inflammation. In Dr. Joseph Mercola's book *EMF\*D*, he writes at length about how this mechanism is the main reason we should be cognizant of avoiding nnEMFs. It's all about cell signaling, and the activation of voltage gated calcium channels (VGCCs) which cause calcium influx into the cell leads to an increase in nitric oxide (NO) production. NO is not something we want in our cells in this instance, and it can be easily converted into a downstream free radical...peroxynitrite which in turn increases oxidative stress, and cellular damage.

***“Mitochondrial Ca<sup>2+</sup> uptake in combination with NO (nitric oxide) production triggers the collapse of mitochondrial membrane potential, culminating in delayed cell death.”***

***[-https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2270168/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2270168/)***



Now that we got into the weeds of the mechanisms, let's zoom back out to relatable symptoms. VGCCs (also referred to as VDCCs) are essential for many biological functions, and **“dysfunctions have been implicated in a wide variety of CNS pathologies, including epilepsy, neurodegenerative diseases, neuropathic pain, and neuropsychiatric disorders.”** (<https://nyaspubs.onlinelibrary.wiley.com/doi/full/10.1111/nyas.14597>). Important context here is time of exposure. From the review I just quoted, some VGCC results were mixed depending on if the exposure was acute (<2hr), subchronic (2-48hrs), or chronic (>48hrs). 100+ papers were reviewed and **ALL BUT ONE** reported significant effects after chronic exposure. When you are traveling, especially on long haul flights you cannot avoid chronic exposure levels, that is why taking precautions is important to avoid significant activation of VGCCs and the downstream effects.

More downstream effects that have been studied in relation to ELF and RF nEMFs:

- DNA damage
- Cardiomyopathy
- Carcinogenicity
- Sperm damage & lowered fertility
- Neurological effects (specifics mentioned above + EHS)
- Increased brain + thyroid cancer risk (statistically significant associations)

I hope this has opened your eyes to taking nEMF exposure seriously. I know it is conceptually hard to grasp something that we cannot see or feel, and also something that is SO UBIQUITOUS in our modern world. Trust me, I did not even think of these things until I went down my own healing journey from post concussive syndrome (PCS) and therefore became pretty electro hypersensitive (EHS). This has been a brief (I tried) introduction into the world of

nnEMFs, I will likely write far more on this topic and perhaps create a standalone guide. For now, it will be of value for you to understand the mitigation techniques that are highlighted in this guide during a period of chronic, unavoidable exposure...traveling.

### Ionizing Radiation

We just discussed at length about non-ionizing radiation, which is the more “woo-woo” of modern science that most people don’t accept as harmful to the body. On the further end of the EMR spectrum is ionizing radiation. Ionizing radiation is widely accepted to cause DNA damage, but the cosmic ionizing radiation levels you receive on your standard air travel is considered “low level” and a “normal amount of naturally occurring radiation” according to governing bodies like the CDC. They aren’t incorrect, as a flight across the United States from coast to coast provides about one-third the radiation that a chest x-ray does. The CDC states that we are on average exposed to around 2.5 mSv of radiation “naturally” through inhalation and ingestion of the environment we live in. That single coast to coast flight is around 0.035mSV. However, the longer the flight and the closer the route goes to the poles...the higher the radiation. A transatlantic flight is 0.1mSV (3x U.S. coast to coast). As you can logically imagine, what I am getting at is that it is not insignificant. If you take 20+ flights a year (which many business people average far more than this), you are at minimum adding an additional ~25% to your annual radiation exposure. Nevertheless, it is just another thing to be MINDFUL of. Airline pilots and cabin crew have higher incidences of cancer, and whether that is from the ionizing, non-ionizing EMR, damaged circadian rhythms, poor sleep does not matter...disease is a culmination of chronic exposure to external stressors.

## **Part II: How to Mitigate the Biological Damage of Traveling**

Now that you know why traveling can be so “unhealthy”, you may be wanting to never travel again. I feel that way more and more as I have gotten older and taken far too many flights in my lifetime, but let me share with you the good news: you can hack the way you travel in order to have LESS detrimental side effects. From meal timing to TSA precheck to supplements, I have included what I think personally is most effective. This is my actual protocol.

### **PRE-TRAVEL**

Improving your resilience to long haul flights begins way before you ever step foot on an airplane. Like anything else, we start with the basics. If you don't have your lifestyle in order for optimal health, you are going to be more affected by the detriments of travel, especially when we consider the long term health effects. This means you should be prioritizing all pillars of health:

- Eating high quality & nutrient dense whole foods (local/seasonal whenever possible)
- Moving regularly and physically challenging yourself
- Optimizing your circadian biology through deliberate sun exposure and minimizing artificial light
- Maximizing your exposure to nature, and getting connected with the earth
- Prioritizing sleep hygiene
- Embracing loving and supportive social relationships with friends + family
- Carrying a positive mental framework & pursuing something you are passionate about in life

Some of these “pillars” are intertwined of course, but this is a basic rundown of how I see it. What matters is not the specifics, but the deliberate action to living a more optimal lifestyle that puts you in a better position in terms of vitality and self-fulfillment. Everyone is at a different stage in their journey.

Now that we have covered the basics, I want to highlight a few specific items of your lifestyle that you can put extra emphasis on or tweak leading up to a travel date for extra benefits.

#### 1) Low Carb/Ketogenic Diet

Ketones are very anti-inflammatory (you may have heard). You may have also heard that they “are a cleaner source of fuel for our body”. What does that even mean? Well 90% of our energy comes from our mitochondria, remember, so that must mean ketones are a preferred input to our mitochondria to produce ATP? That would be the case. Ketones improves mitochondrial respiration by improving the NAD<sup>+</sup>/NADH ratio and decreasing the amount of reactive oxygen species (ROS) that are produced, limiting oxidative stress.

**“Ketones also significantly decreased mitochondrial production of reactive oxygen species and the associated excitotoxic changes by increasing NADH oxidation in the mitochondrial respiratory chain.”**

- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1865572/>

And that’s not all ketones do. They also can act as a signaling molecule for mitochondrial hormesis, or mitohormesis, indirectly by inducing mitochondrial adaptation that is needed to support nutritional ketosis metabolism. This in turn leads to mitochondria more resilient to oxidative stress. Ketones UPREGULATE basically all of the important proteins in mitochondrial cellular respiration pathway, including ALL FIVE complexes in the Electron Transport Chain (ETC). This actually blew me away, and is basically undeniable proof that ketones make your mitochondria fire on all cylinders compared to standard petrol (glucose). Ketones are high octane fuel.

**“There is abundant evidence (Table below) showing ketogenic and low-carbohydrate diets to increase expression, content, or activity of many targets of these signaling proteins, further indicating increased oxidative capacity. It is particularly striking that ketogenic or low-carbohydrate diets upregulate expression of proteins associated with each of the five mtETC complexes.”**

- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5828461/>

Bioenergetic proteins upregulated by ketogenic or low-carbohydrate diets.
<i>Oxidative phosphorylation</i>
NADH dehydrogenase (complex I)
Succinate dehydrogenase (complex II)
Cytochrome c reductase (complex III)
Cytochrome c oxidase (complex IV)
ATP synthase (complex V)
Cytochrome c
<i>Citric acid cycle</i>
Citrate synthase
Isocitrate dehydrogenase
Succinate dehydrogenase (complex II)
Malate dehydrogenase

The last item to consider as a potential benefit for nutritional ketosis leading up to travel is that fats (lipids) produce TWICE as much metabolic water compared to carbohydrates. Water is a bi-product of cellular respiration in mitochondria, and is imperative for intercellular

communication. Metabolic water is naturally structured (4th phase of water) and deuterium depleted. As discussed, nnEMFs can severely dehydrate our body, so having sufficient amounts of water in our cells is even more important when traveling...another benefit of a high fat/low carb ketogenic diet.

## 2) Sun Exposure & Optimal Circadian Health

Circadian biology is the crux of traveling pitfalls. I do not want to beat a dead horse here but it is imperative to be very on point from a circadian health perspective pre travel. If your melatonin levels are already in the gutter, its going to be an even more miserable time for your body to be put through the ringer. Think of it as pushing your levels as high as possible pre-travel because you know you're going to take a small setback, but if that setback is putting you to where you were just everyday 6-12 months ago...you're in a far better place. Glad that is clear. NOW, let's talk about maximizing sun exposure...

Getting as much sun as possible in the weeks/days leading up to travel will do two things for you: maximize your melanin and vitamin D levels. Melanin acts as your body's natural Faraday Cage, protecting your skin from high energy wavelengths including UV and more importantly blue light. Melanin is also a potent free radical scavenger, so all the excess oxidative stress from traveling can be mitigated by having optimal melanin levels.

Vitamin D is widely known for its ability to “boost immunity”, which of course is relevant to anyone traveling...as likelihood for contracting a sickness increases tremendously due to so many external stressors. At the functional level, Vitamin D is responsible for regulating key cell signaling molecules such as Ca<sup>2+</sup> and reactive oxygen species (ROS). A large number of cell processes are regulated by Ca<sup>2+</sup> signaling pathways, but as discussed in the nnEMF section, when there is an influx of Ca<sup>2+</sup> in the cell (specifically in the mitochondria), it increases formation of free radicals and overstimulates nitric oxide synthase (NOS) production which leads to even more free radicals. A vicious negative feedback loop that only goes further as the ROS that are generated can then sensitize receptors to increase Ca<sup>2+</sup> release. However, Vitamin D has the ability to maintain redox homeostasis (if at optimal levels). Vitamin D activates two important genes, Nrf2 and Klotho, which both play a key role in cell signaling systems. These systems controlled by Vit D/Nrf2/Klotho function to maintain Ca<sup>2+</sup> homeostasis by increasing the expression of Ca<sup>2+</sup> pumps, exchangers, and buffers. Vit D/Nrf2/Klotho also increase cellular antioxidants to help combat ROS and the potentially damaging poor redox feedback loop mentioned above. **The way I see it: traveling is going to lower redox through artificial light, nnEMF exposure, altering time zones, etc...maxxing melanin and Vitamin D levels before departure will help combat that.**

***“A decline in vitamin D levels will lead to an erosion of this signaling stability and may account for why so many of the major diseases in man, which have been linked to vitamin D deficiency, are associated with a dysregulation in both ROS and Ca<sup>2+</sup> signaling.”***

- <https://pubmed.ncbi.nlm.nih.gov/26009175/>



## Pre-Travel: Timing

Taking a break from the biological side of things for more logical tips surrounding timing of travel. Some of these will seem intuitive but some people will still just book the CHEAPEST possible flight and not even consider alternatives. I am telling you right now that spending \$50-\$200 more on a more optimal timed flight is worth it. Also, a lot of you are traveling for work purposes...so you have no excuse to pick the best time. There is also a timing component in the days leading up to your departure.

Booking the right flight time is key. It depends on where you are traveling but here is what I like to do whenever I travel:

### ***Book a flight that arrives in the new time zone destination in the morning/mid day.***

Arriving in the morning in a new time zone means that you can try your best to sleep on the flight, and then arrive in an environment that will give your body the input signals it needs to adjust to the new time zone (light). If you arrive at 10AM, and have the ability to go outside for a few hours then your body will adjust much faster than arriving at 7PM when it's already going to be dark or approaching sundown. Remember that light is the input signal to your biological clock. You will likely be tired from getting little to no sleep on the flight, but the light signals throughout the day will be worth it if you can push yourself to make it to 8-9PM before falling asleep. Another easy hack is to try to go to bed 1-2 hours earlier/later in the days leading up to your travel date. This won't solve all your issues but it will make an 8 hour time zone change feel more like a 6 hour change, which is more impactful than you think. Aligning this with timing of meals as well 1-4 days before departure can also help.

Ex: If you travel from West Coast USA to Central Europe (9 hour time difference-earlier), start eating dinner at 3-5PM instead of 6-8PM in the days leading up to travel and start waking up at 3-5AM instead of 6-8AM.

There is even a paid app, called Timeshifter, that can help you plan out meal timing and sleep schedules in regards to a drastic time zone change trip. I have not used it, but it is a cool option. <https://www.timeshifter.com/>. I would recommend starting to shift your meal timing 72 hours before your departure (if changing >2 hours time zone). This will help your body shift easier into the new time zone.

## Pre-Travel: Miscellaneous

There are a few other things you can do to make travel far easier and less stressful (depending on where you live). Here are my quick tips:

- Pay for TSA Precheck and/or Global Entry
- Download a Mobile Passport App for Re-Entry to the U.S.A.
- ONLY check baggage if you absolutely have to

Some regular travelers know these are non-negotiables. For the not so frequent traveler, you may not really see the value. Here's why it matters:

***I want to spend AS LITTLE time in the airport as possible, with as few distractions/disturbances or chances for delays.***

If you have TSA precheck, and do not check a bag (how I usually travel)...you can show up for domestic travel 40-50 min before departure and 60 min for international flights. Sounds crazy, but it gives you back more time, means less time in a toxic soup airport, and minimizes waiting in line drastically. Same goes for Global Entry or mobile passport...getting through customs in U.S. can sometimes take hours and cause a missed connection. Don't be ignorant to the fact there are proactive ways to speed that up. Checking a bag means you HAVE to show up 60-75 min before domestic travel, and 90 min before international (at least), so if you really don't need a 50lb suitcase...leave it at home. You'll be waiting an additional 15-45 min at baggage claim and if you fly international with <1.5 hour connections, there's a strong chance your bag will be 1-3 days late. More unnecessary stress.

## DURING TRAVEL

Now we get to the fun part, you have stepped foot in the airport and airplane and are wanting to do everything in your power to not feel as sh\*t. Don't worry, because that is impossible. The resonant frequency of that quantity of NPCs will certainly bring your energy down no matter how many supplements you take (jk). Seriously, there is a lot you can do...and it will change your traveling experience completely when done correctly. Let's dive in.

### 1) FASTING

In my honest opinion, the most effective travel hack. It's also free and will make adjusting into your arrival time zone FAR easier. If you didn't skip through the very engaging section on ketones earlier in the Pre-Travel section (I won't repeat that here), you already know how beneficial this fuel source is for your body. Fasting will elevate your ketone levels even higher. It will give your body the time and energy back from otherwise digesting to focus on dealing with the inflammatory stress caused from travel. Better yet even, depending on the length of your travel, it will induce mild to moderate autophagy-or the process of cell cleanup. For transcontinental flights, fasting is a non-negotiable. For 2-3 hour domestic flights (which in turn illicit less cellular damage), it is recommended but not the end all be all. Regardless, I DO NOT eat less than 2-3 hours before my flight, period. Eating in an airplane is the easiest way to ruin all of your effort in mitigating travel stressors. Why? Well if you eat airplane food...I don't even need to explain. Chock full of seed oils, processed grains, preservatives, etc. If you eat some fancy snack you personally brought, you are still confusing your body. Food is an input signal to your biology, and if you are eating a banana grown in Honduras on your flight from NYC to Los Angeles, well your body is going to be VERY confused about where the hell you are. Food has photonic energy that signatures its location and season. Also, that banana will kick you out of ketosis very quickly. Hunger hormones like ghrelin are dictated by your circadian rhythm. If you fast until arrival, it will be SO much easier to transition to your destination's meal schedule since

you have a blank slate. It will thus be easier to transition your body's clock in all facets. Also, please no airport beers, this WILL break a fast.

***For time zone changes >2 hours, fasting for the entire duration of travel is a MUST. (Yes even if you travel for 24-36 hours). I have fasted the last 4-5 trips to and from Europe and it has been the single biggest game changer for how I feel and how quickly I acclimate to the new time zone.***

## 2) Blocking Artificial Light

I think by now you have some inkling of how important light is as an input signal to your biology. So how do we avoid all the toxic blue light we discussed earlier? We block it. How?

- Blue Light Blocking Glasses (Orange/Red Tint)
- Clothing
- Filtered Screens

Blue light blocking glasses are a must for traveling. Your eyes have the highest density of photoreceptors, so this one is extremely important. I don't care if you think it makes you look like a 70s pornstar or a 2030 space dork. If you bought this guide, I would hope that you don't give a f\*ck about what the average person in an airport (that you will never see again in your life) thinks about you. Buy the glasses with orange/red tint for your actual flight, and you can wear yellow tinted glasses if it's daytime in the airport itself. Some decent brands are: RA optics, BlockBlueLight, BonCharge, EMR-Tek, etc. I personally use BlockBlueLight b/c they are reasonably priced (TRISTAN10) and effective. Some can be pricey for the real deal, and there are cheaper alternatives on Amazon, but you roll the dice with a \$20 pair sometimes ( I have tried many). If Felix Gray or MVMT is trying to convince you that basically clear lenses block blue light...they are lying sorry.

Clothing. An underrated way to block artificial light. Although the eyes have the highest density of photoreceptors, they are still present all over your skin. Blue light stimulates melanocytes in your skin to produce melanin, so don't underestimate the impact artificial blue light on your legs or arms can have. Obviously you will always have SOME skin exposed to the artificial lighting of an airplane, but if you wear long pants, a long sleeve shirt/jacket, a hat, and shoes/socks you are covering 95% of your body. This typically aligns with the cooler airplane temps anyways, and then allows you to have some extra space in your luggage.

If you vehemently refuse to buy a pair of blue light blocking glasses, at least filter the screen color on your phone and computer. You can do this easily on an iphone (<https://www.blockbluelight.com/blogs/news/how-to-turn-your-iphone-screen-red#>) and on your laptop via the display setting or by purchasing a light filtering software such as Iris (<https://iristech.co/>).

***Blocking artificial light is a key measure of mitigation that will simultaneously reduce cellular chaos/damage, AND allow you to transition to your new time zone far easier.***

### 3) Blocking nnEMFs

Next after light is attempting to “block” the harmful nnEMFs that we discussed at length in the beginning of this guide. Is this even possible you might ask? Partially. There is a fair amount of EMF blocking clothing out on the market now, and biohacking gurus like Ben Greenfield say it makes the “biggest difference” in combatting jet lag. Most of these clothing companies use silver in their fabric to act as a natural faraday cage. A faraday cage keeps the electromagnetic fields below the material IN, but more importantly everything external from stays OUT and is unable to penetrate the cage. Silver is the most effective faraday cage because it is also the single most conductive element/metal (electrically). I personally wear and have worn EMF blocking hats, beanies, and underwear whilst traveling (I almost always wear the hat) because I value my brain and my balls. Also, the brain and testes are two of the most sensitive organs to nnEMFs. I have worn the brand getlamps and they have a pretty good site (<https://getlamps.com/science>) that explains reducing oxidative stress, etc. from wearing EMF blocking clothing. According to them, their clothing blocks ~99.9% of the radiation from 700MHz, 1GHz, 2GHz, 3GHz, 5Ghz frequencies of nnEMFs. These are in the range of common RF frequencies that do cause a lot of damage. I am not affiliated with them technically, but respect their products. Technically anything with silver will help tremendously, so covering highly sensitive areas or as much skin surface as you can would be most ideal. The Ben Greenfield’s of the world wear the full getup of hoodies + long johns + hats from companies like “No Choice” (<https://www.nochoicestore.com/product-page/organic-cotton-hoodies>). Any brand is going to be pretty expensive. You could also DIY your own clothing, garments by purchasing silver/copper fabric (<https://www.etsy.com/listing/1025581060/military-grade-shielding-silver-copper>).

That is the clothing piece, next is the technology piece. You are likely going to be using your phone/laptop at some point. Companies like DefenderShield (<https://defendershield.com/>) have phone cases, laptop cases, clothing, faraday bags, wired airtube headphones, and more than you could ever want or possibly need. They also have great blogs about EMF dangers and health effects. I am not affiliated personally (yet) but I am close with the members of their advisory board and trust the quality of their products. There is a LOT of EMF blocking junk out there on the market, from crystals to stickers to cases, I have shared with you two brands that I have used and think are the most efficacious.

### 4) Water

Traveling, as a result of external stressors such as non-native EMF (nnEMF) exposure is extremely dehydrating. Dehydration means that your body is depleted of electrolytes. Electrolytes are conducting electrical currents in your body, and are necessary for the proper function of your mitochondria to produce ATP. This is why dehydration leads to increased oxidative stress. For this reason it is imperative to stave off this dehydration with a quality water source so your body can react and repair to the stressors of travel effectively. I am of the opinion that filtered water is DEAD water. Unfortunately, that is what you will find a lot of in many airports. Since you cannot bring water past security, here are my recommendations:

- Drink a sufficient amount of spring/mineralized water before you get to the airport/security checkpoints
- Bring mineralization drops/tablets if you are concerned there will be no spring water for sale in airport
- Buy a few bottles worth of spring/mineral water (Evian, Pellegrino are most common in US airports) when you see them

Minerals are key to actually hydrating the cell and allowing for effective intercellular communication. If you want to take your biohacking to the next level, you can drink Deuterium depleted water (DDW) pre-travel or bring molecular hydrogen tablets to dissolve in airport filtered water. DDW is a lighter, more efficient form of water that will result in less deuterium clogging up your Electron Transport Chain (ETC) in your mitochondria as deuterium is 2x the molecular mass of H<sup>+</sup> (protium). Molecular Hydrogen will also combat a more inefficient ETC as a result of traveling by providing more H<sup>+</sup> ions and combating reactive oxygen species (ROS).

## 5) Methylene Blue

A supplement/compound so worthy that it gets its own section. Methylene Blue (MB) is actually one of the only supplements I take on a somewhat regular basis. And by regular I still only use it for high stress (like traveling) or high work (cognitively taxing) situations. Methylene Blue is extremely beneficial in supporting mitochondria by acting as an electron “cycler”, a term coined by Dr. Gonzalez-Lima who has done extensive research on this compound. What that means is that MB can be reduced or oxidized and help support the Electron Transport Chain which again will be under extra stress during travel. I wrote a nice thread on methylene blue that dives deeper into the mechanism of action and history ([link here](#)). MB is also anti-bacterial, anti-parasitic, and anti-fungal so it could help with any unwanted friends acquired during travel. MB was the first EVER synthetic drug approved in the late 19th century for medicinal use and was used for malarial treatments. If i was going to Africa or the tropics i would be bringing even extra of this. Because of its beneficial effects on the mitochondria, MB is considered neuro-protective, as energy is always a limiting factor in cognitive performance. If this is a work trip where you need to perform, MB can help you be at your cognitive best even after flying halfway across the world. It is also a mild antidepressant as it acts as an MAO inhibitor, an enzyme that breaks down neurotransmitters like serotonin in the brain.

As with all supplements, please do your own research...especially with any synthetic compounds like Methylene Blue. It has been VERY well researched and proven safe at LOW DOSES (<5mg/kg), but even the dosage mentioned has an upper range that is WAY higher than what I would ever take. Most important for MB is quality, get pharmaceutical USP grade or simply don't buy it. It is pretty affordable in dropper form from the likes of Meraki Medicinal (TRISTAN15-<https://www.merakimedical.com/>)

I personally only take Methylene Blue when I travel, am performing extreme exercise in hypoxic environments (summitting mountains) or have a large cognitive load of work that needs to be done. I never take it everyday or for an extended period of time, and probably never will because I am extremely sensitive to stimulants and there is always some form of dependence

or endogenous production suppression when a foreign compound enters your body. Especially one that causes temporary serotonin buildup as an MAO inhibitor. I usually take 2-10mg and I weigh 80kg. On travel days maybe I take up to 20-30mg total...still way under the safe "low dose" upper limit of 5mg/kg.

## 6) Other Supplements

**Magnesium.** Magnesium plays a critical role in optimal human health, acting as a cofactor for over 300 enzymatic processes in the body. Because of soil depletion and poor diets, it is estimated that as high as 75% of the U.S. adult population does not meet the RDA of 420mg of magnesium per day. Now this may be the usual spiel you hear about this mineral, but now I want to focus on an underrated function of magnesium: its ability to antagonize calcium and prevent calcium from entering the cell by blocking calcium channels. We have discussed AT LENGTH why this is important and is a common side effect of travel stressors. Magnesium deficiency can lead to the body being less resilient in handling stress, as the normally blocked calcium channels will be activated even sooner...leading to increased oxidative stress and release of inflammatory cytokines. You can take magnesium as a supplement in many different forms. Glycinate, Taurate, L-threonate, Malate or personal favorites of the esoteric health community and the amino acid it is bound to can have its own benefits. However for me, it is all about synergism when it comes to minerals so I prefer to set my baseline with a mineral spring water and top off if needed with a supplement. Of the common mineral water brands, Gerolsteiner has the highest magnesium content at 108mg per liter.

***“Addition of MgCl<sub>2</sub> or MgSO<sub>4</sub> in the external medium induced a depolarization level lower than the previous level, as nifedipine a Ca<sup>2+</sup> blocker, corresponding to a Ca<sup>2+</sup> influx reduction in VSMCs (vascular smooth muscle cells) and VECs (vascular endothelial cells) and inducing relaxation of the cells. These data suggested that Mg salts regulated the Ca<sup>2+</sup> influx through voltage-gated Ca<sup>2+</sup> channels in VSMCs and VECs.”***

- <https://pubmed.ncbi.nlm.nih.gov/11300616/>

**NAD<sup>+</sup> Precursors.** NAD<sup>+</sup> is an essential coenzyme in many important biological processes such as our production of energy (ATP) in the mitochondria. NAD<sup>+</sup> is reduced to NADH in glycolysis, pyruvate dehydrogenase, and the TCA/Krebs Cycle to provide electrons and protons to the Electron Transport Chain...where we generate most of our ATP. NADH is oxidized back to NAD<sup>+</sup> and the cycle starts again. It is imperative to retain a high NAD<sup>+</sup>/NADH ratio in our cells, however NAD<sup>+</sup> levels decline as we age, and this decline in cellular NAD<sup>+</sup> has been linked to the a main cause of aging + chronic disease...notably researched by Dr. David Sinclair from MIT. We generate NAD<sup>+</sup> from multiple biological pathways, to which there are multiple "inputs" or "precursors" including Tryptophan, Nicotinic Acid (NA), Nicotinamide (Nam), Nicotinamide Riboside (NR), and Nicotinamide Mononucleotide (NMN). From a simplistic approach, the notion is:

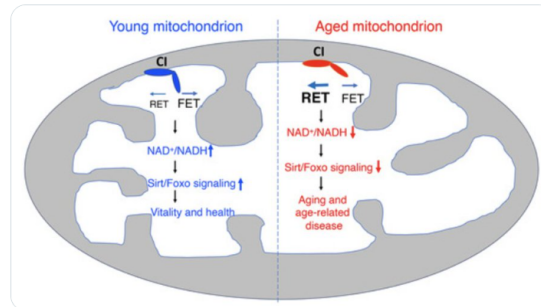


Increase NAD<sup>+</sup> precursors → increase the level of NAD → increase energy, reduce aging, chronic disease, cell damage



David Sinclair  
@davidasinclair

A unidirectional transfer of electrons between mito proteins generates energy and raises NAD<sup>+</sup>. As flies age, electron reversal lowers NAD<sup>+</sup>/NADH, reducing sirtuin defenses against aging. The NAD<sup>+</sup> booster NMN extends fly lifespan. Same for mice? Let's see [tinyurl.com/3s9w8jcb](https://tinyurl.com/3s9w8jcb)



9:04 AM · Feb 17, 2023 · 196.2K Views

From recent research it seems that NR and NMN via oral supplementation are the only precursors that can have a notable increase in NAD<sup>+</sup> levels in humans. Dr. David Sinclair has done all his research on NMN, but NR is just as popular in the biohacking community. There have been a few initial comparison studies with no consensus outcome on “which is better”. You can also get NAD<sup>+</sup> IVs, patches, and nasal sprays (if your budget is far higher than mine), and these likely would be the absolute BEST way to boost NAD<sup>+</sup> levels during travel. Again, we are talking about an input to how our mitochondria produce energy (consistent theme), so during travel it would be imperative to top that off to handle the stressors better. I have supplemented with NR for 4+ years now, initially as a way to give my brain energy to help heal a concussion. I have found that it DOES work. I actually got so much energy initially that I found I could not take NR in the afternoon or else it would affect my sleep. Let it be stated that you can naturally increase NAD<sup>+</sup> levels in your body by exercising, eating a nutrient dense diet (foods that contain Vit. B3 + Tryptophan), and occasionally fasting. Let it be stated also that many have brought up the concern that excessive nicotinamide or any NAD<sup>+</sup> precursor supplementation can deplete availability of methyl groups, so many recommend that you take a supplement that comes co-packaged with something like Trimethylglycine (TMG) or take that with the NAD<sup>+</sup> precursor. Recent research (<https://www.sciencedirect.com/science/article/pii/S2589004223003553>) has disproved this to some degree, but companies like Thorne (what I take) put TMG in their formula so I do not even have to worry.

***NAD<sup>+</sup> precursors are another tool in the shed to improve mitochondrial function during travel, they can be quite pricey but I have noticed improved energy during travel when taking NR. I only take NR during times of need (travel, injury, poor sleep, etc.). Attacking mitochondrial efficiency from all fronts during travel seems to be very efficacious.***

**Fulvic Acid/Shilajit.** You may have heard of Fulvic Acid, or a natural supplement that is very high in Fulvic Acid: Shilajit. Fulvic acid is a humic substance that is rich in many trace minerals + is very beneficial for mitochondrial health. It serves as an electron donor to the mitochondria

which improves the efficiency of cellular respiration. Humic substances like fulvic acid are also known for their strength as heavy metal binders, mostly by agronomists, but they have been shown to be particularly beneficial in mitigating effects from lead, cadmium and mercury through improving detoxification. It's quite impactful when you can consume a substance that is rich in minerals, while also simultaneously can help detoxify from heavy metals. Fulvic acid may be the most impactful of all humic substances because of its very small molecular size, which as a result makes it easier to get into the cell and also cross the blood brain barrier.

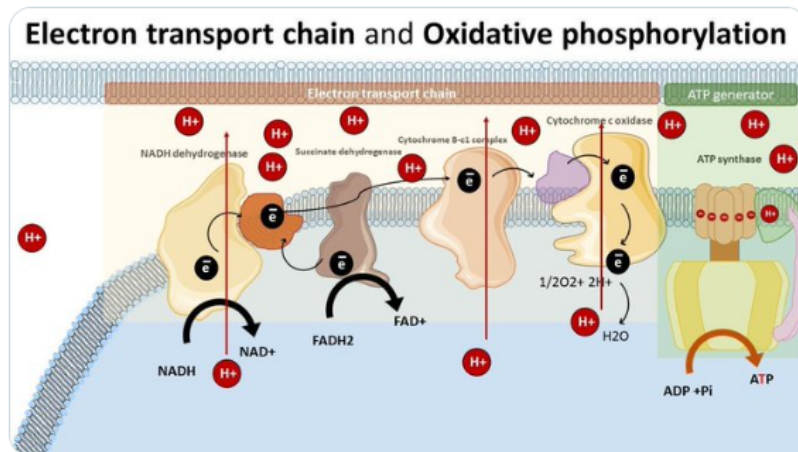


Tristan  
@bitcoinand\_beef

...

FA is a small molecule (smaller than humic acid/humin) so is able to penetrate the cell & cross the blood brain barrier

It serves as an electron donor in the mitochondria, which is very important to the efficiency of cellular respiration -->how we produce 90% of our energy



Sources of Fulvic Acid:

- Foods grown in healthy soils (roots, tubers, etc.)
- Seaweed
- Molasses
- Fulvic Acid supplements
- Shilajit

Shilajit is a naturally occurring substance found in various high altitude mountain ranges, coming from rock secretions. Its main claim to fame is that it contains high amounts of fulvic acid (15-30%) + tons of minerals. Yes you are basically consuming rock sludge. Yes it can help your mitochondria be more efficient in time of need (travel).



I am affiliated with BASED shilajit (<https://basedsupplements.co/> code TRISTAN10) but there are many good brands of Shilajit out there, just make sure it is 3rd party lab tested and pure.

**Melatonin.** I really considered leaving this one completely out of this guide, but I know I would get 4200 questions about taking melatonin during travel if I did not address it. Let me be clear, I DO NOT SUPPORT MELATONIN SUPPLEMENTATION. Melatonin is the master hormone when it comes to circadian and mitochondrial health. I have already discussed how important it is to have optimal melatonin rhythms (pineal produced) and mitochondrial produced melatonin. I do not support regular supplementation of anything the body produces endogenously, because there will ALWAYS be some dependency formed and down-regulation of endogenous production.

Here's the main thing people miss about the melatonin supplementation debate: your body produces 10-300 MICROGRAMS of melatonin per night (wide range as I found a few different sources, much higher when you are a baby/teenager). 300 micrograms is 0.3 milligrams. MOST melatonin supplements have a table serving size of 1-5mg, which is 5-10x the amount your body produces in one night. WAY overkill and an easy way to overcrowd receptors and down regulate endogenous production. I don't care if there is NO science to prove otherwise, that is a silly way to prove your bias. I took melatonin almost daily in college when I was drinking 6 cups of coffee a day to pass engineering courses + playing collegiate soccer and guess what, I was totally dependent on it to fall asleep. Was easily taking 5-10mg to conk out each night. Not convinced? Melatonin sold over the counter has been BANNED for years in the UK, EU, Japan, Australia, and now Canada. This hormone should NOT be sold and taken at the ease that it currently is in the US.

Okay I think you have gotten the gist of why I am not a fan of melatonin supplementation, rant over. However, I may make ONE exception...and it does have to do with long haul travel. I have done the hacks in this guide both WITH and WITHOUT a very small dose of melatonin on the first night I arrived in my new destination (was Europe both times...8 hour time switch), and I will admit that I did transition better when I took it. Here's what I consider acceptable:

***ONE night only. I'm serious. If you can't abstain from doing it a 2nd or 3rd night then don't bring it with you at all. The very first night after you arrive, I would be okay with taking a MICRO-dose of melatonin that is consistent with bodily output levels. That means 0.2-0.3mg MAX. This would only be for drastic (4+ hour) time zone change differences.***

Taking such a dose can be challenging in and of itself. What I did for travel was I bought the smallest dosed quantity I could find (1mg) and took a nibble off the side. A quick search and I found that Pure Encapsulations makes a 0.5mg tablet now (not affiliated). I would bring one tablet, or better yet before you travel i would break one tablet in HALF and only bring that. This is the only sort of melatonin supplementation I would be okay with, and is something I have personally done.

HOWEVER, there is a natural alternative that you should try as well. Tart cherry juice/powder is naturally high in melatonin and could be taken instead of synthetic mystery melatonin. A friend recommended to me <https://nwwildfoods.com/> for powdered tart cherry so I am going to try this on my next bout of travel. Multiple studies have shown that tart cherry juice is efficacious at improving sleep duration and quality.

## POST TRAVEL/ARRIVAL

You have now made it to your destination. You're tired, hungry, and the Methylene Blue has worn off so you are ready to get to your accommodation. However you are not finished with your travel hacks just yet, as a matter of fact if you don't follow these last few steps (at least the first two) you are really down regulating the impact of all the things you did pre and during travel. These steps are mostly modalities you already know from the rest of this guide, so it should be a slam dunk to finish it out.

### 1) SUNLIGHT

Getting outside AS MUCH as you possibly can when you first arrive at your destination is imperative synchronizing with the local time zone. Again, full spectrum sunlight is the input signal your body needs in order to set your circadian rhythm to align with your geographical location. This is why I like to arrive at my destinations in the morning, because then I can have ample amount of time to get sunlight during the day. Blue light from the sun stimulates cortisol production, so it'll provide you some much needed wakefulness after the long haul flight and get your body transition into its proper pineal produced melatonin/cortisol rhythm of the new time zone.

Red/Infrared light, which is present in all sunlight, improves mitochondrial function, specifically deep red and Near-Infrared (NIR) wavelengths (650nm-1250nm). These wavelengths can penetrate deep into the skin, with NIR being able to penetrate to a depth of several inches! NIR then directly acts on Cytochrome C Oxidase or Complex IV in the Electron Transport chain to improve mitochondrial function.

***“When the NIR penetrates into the mitochondria, the potential mitochondrial photoreceptor molecule, cytochrome c oxidase (CCO), accepts NIR photons culminating in improved mitochondrial energy metabolism, increased cytoprotective factor production, and cell survival.”***


- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9855654/>

This upregulation of mitochondria by deep red and infrared is the reason why “Photobiomodulation” has become a very popular biohacking modality in the health space. You can certainly buy and bring a travel red light device with you, ([link to EMR-Tek lights here 10% off](#)) but these devices should be treated as **supplementary** to full spectrum sunlight. The research on photobiomodulation is undeniable, with one paper from 2013 brashly titled: “Is It Time to Consider Photobiomodulation As a Drug Equivalent?”.

(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3643261/>). That paper highlighted how recent research has shown the neuroprotective benefits of red and near infrared radiation (NIR) treatments such as reversing mitochondrial dysfunction and dopamine loss in Parkinson's disease patients. As well as normalizing mitochondrial movement and axon transport.

## 2) GROUNDING/EARTHING

Connecting to the earth. Something that was not even a conscious thought until only just recently for humanity. Today, the average human RARELY comes in direct contact with the surface of the earth. Young children revel at the opportunity, but nearly all adults go hours, days, weeks without connecting to the surface of the Earth. The result of this disconnection? Lower redox potential by failing to absorb the free electrons available on the surface of the earth. Grounding has been hailed as “anti-inflammatory” by many health influencers, without really much explanation as to how. Again it all comes back to the oxidative stress we experience in our mitochondria. Free radicals like reactive oxygen species (ROS) are typically searching for an electron to fill their valence shell, making them stable again. When you absorb electrons from the earth's surface, you are improving your body's ability to maintain redox homeostasis. Sounds crazy right? Here's an even better example...

<b>GROUNDING</b>	
<b>WHAT PEOPLE THINK IT DOES</b>	<b>WHAT IT REALLY DOES</b>
<b>NOTHING</b>	<ul style="list-style-type: none"><li>• <b>LOWERS INFLAMMATION</b></li><li>• <b>IMPROVES SLEEP</b></li><li>• <b>REDUCES PAIN</b></li><li>• <b>IMPROVES BLOOD PRESSURE</b></li><li>• <b>REDUCES ANXIETY</b></li><li>• <b>ALLEVIATES FATIGUE</b></li><li>• <b>IMPROVES MOOD</b></li><li>• <b>REDUCES BLOOD VISCOSITY</b></li><li>• <b>REDUCES OXIDATIVE STRESS</b></li></ul>
	

You are likely unaware that blood flow is regulated by electromagnetic fields and signals. The lining of our blood vessels and the surface of red blood cells have a negative charge, which is also known as a “zeta potential”. The negative charge needs to be maintained so that RBCs can repel each other and prevent coagulation and clotting. Grounding provides free electrons to be able to maintain healthy zeta potential levels.

***“Grounding increases the surface charge on RBCs and thereby reduces blood viscosity and clumping. Grounding appears to be one of the simplest and yet most***

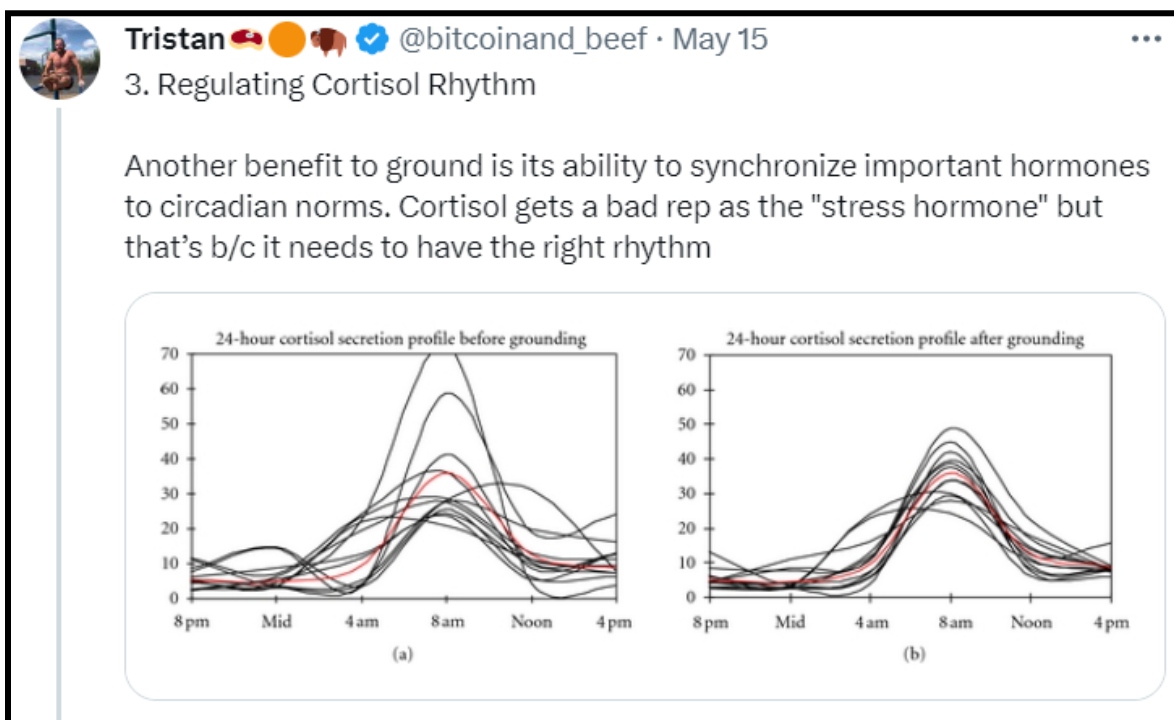
***profound interventions for helping reduce cardiovascular risk and cardiovascular events.”***

[-https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3576907/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3576907/)



Due to the external stress and lack of movement during a long haul flight, your blood flow is probably not going to be ideal when you get off an airplane. Grounding can help restore that blood flow whilst simultaneously combatting some of the oxidative stress accrued during travel. But the benefits of grounding don't end there. Grounding can also drastically improve your transition into your new time zone.

Connecting to the earth will give your body ANOTHER input signal for it to understand where the hell in the world you are, and thus what time it is. This information will help your body align its circadian rhythm and cortisol/melatonin production much faster than if you did not ground. Studies have shown that grounding (outside of travel) aligned cortisol secretion to far more natural rhythms. I wrote an entire thread on grounding that you can check out ([https://twitter.com/bitcoinand\\_beef/status/1658102231827365888](https://twitter.com/bitcoinand_beef/status/1658102231827365888)).



**How long do I need to ground?** Number one most common question. The answer: AS MUCH AS YOU POSSIBLY CAN. Grounding provides benefits in ANY amount that it is done. 5 minutes is far better than 1 minute, and 1 hour is far better than 5 minutes. Strive for any amount, because even 5-20 minutes could make a substantial difference in how you feel. Grass/dirt/trees are fantastic and obvious surfaces to ground on, but concrete is also very conductive. Even better is getting on wet grass or wet concrete...and EVEN BETTER is swimming in the ocean or a body of water. Also the ground is going to be more electrically negatively charged after a thunderstorm. Barefoot is best, but there are some decent options for "grounded shoes" nowadays thanks to the esoteric health movement. Earth runners (<https://earthrunners.com/?rfsn=7459761.ab7e4e>) are my go to but for more formal situations a twitter mutual started Rhizal shoes (Code: [TRISTAN10](#)) which are also grounded via a copper plug.



***Coupling grounding with sun exposure is a free and effective way to combat the oxidative stress from traveling whilst simultaneously improving how quickly your body will transition to its new time zone. A no brainer for post travel optimization.***

### 3) DIET

Going to keep this one short and sweet. Eat clean, eat local and seasonal. (Clean = no seed oils, minimized processed sugars, maximizing real foods). You already understand why input signals matter to optimizing circadian biology, so treat your food as just another input signal



(because it is). Besides, if you travel and DON'T eat the local food...well you might as well be sitting at home in your VR lenses then eating McDonald's. Don't be an uncultured tourist. If you are on vacation, this doesn't mean you have to be a diet Nazi, enjoy your vacation but just be cognizant that the quality of the ingredients determine the quality of the food. Fortunately for most Americans, when they travel abroad to a place like Europe...there is a much higher standard for quality ingredients since the food is a big part of the country's culture and nationalistic pride. Also take advantage of cheaper and more accessible spring water in places like Europe. **Minimize or AVOID alcohol entirely** until you are more acclimated to the time zone. Again, quality matters, but staying out late drinking the same night you step foot off of a transcontinental flight is not wise in the slightest. Enjoy your vacation and have a nice glass of local red wine, but be conscious about jumping in head first.

Also align carb intake with locality/seasonality. Remember that you just fasted for the entire duration of your flight so you will be extremely insulin sensitive (large blood glucose spike). If you want to follow the optimal glucose response rulebook, remember that eating fibrous foods + protein before carbs will dampen the blood glucose spike. So will a postprandial walk. What does this mean? Eat a high protein dinner, get some gelato and go for a walk outside as you enjoy it.

### 4) EXERCISE

Use logic here. Exercising **INTENSELY** after a transcontinental flight is probably not the best move. Give your body a couple days to adjust to the new time zone, and then work your way back into more intense exercise as you feel better. Prioritize walking and bodyweight movements outdoors. Light movements will help tremendously. Certainly train hard if that is part of your typical regimen, but just wait until you are close to fully adjusted to the time zone. Your mitochondria will thank you.

***This concludes the bulk of the material. There is a summary below as well as consolidated affiliate links. Thank you for purchasing my guide. I hope this was insightful for you because learning all of these hacks has empowered me to feel much better during travel.***

***Please leave a review if you found it helpful, and let me know the next time you travel how much better you feel!***

## SUMMARY

Was debating on skipping this section entirely so you would be forced to actually go and read all of the fun science that is in this guide. (Seriously, go read it). Nevertheless, let's concisely discuss the last 25 pages of me rambling into something you can tell your Mom about.

- 1) Why Traveling is Bad for your Health
  - a) Severely Disrupts Circadian Rhythm (Changing Time Zones)
    - i) The more drastic of a time zone change you have, the more drastic the impact on your health.
    - ii) A disrupted circadian rhythm has been linked to many chronic diseases + neurodegeneration. Frequency of disruption matters. (How often you travel).
  - b) Artificial Light
    - i) Blue lit airports, airplanes, trains, buses, screens galore are giving your body the wrong input signal. Further disrupting melatonin production (master antioxidant + mitochondrial composer).
    - ii) Lack of any healing wavelengths (Red + IR) to balance out the blue as airports covered in glass. Glass blocks half of IR spectrum, distorting sunlight.
  - c) High Density of nnEMFs
    - i) ELF (<300Hz) and RF EMFs are detrimental to our health. Communication towers, high bandwidth wifi, and density of people using cellphones makes airports a nnEMF epicenter. They are ubiquitous and nearly unavoidable.
    - ii) nnEMFs induce calcium influx into the cell, a hallmark signal for being in an inflammatory state.
    - iii) nnEMFs induce increased free radical production, leading to loss of redox homeostasis and oxidative stress.
  
- 2) Pre Travel Hacks
  - a) Practicing optimal health lifestyle habits to improve mitochondrial health + resilience during travel.
  - b) Low Carb/Ketogenic diet to utilize more anti-inflammatory ketones as fuel
  - c) Maxxing Sun leading up to travel.
    - i) Optimizing Vitamin D + Melanin levels to prevent inflammatory response (calcium influx into cell) and act as a natural faraday cage to artificial light/nnEMFs.

- ii) Also boosting resilience to potential sickness from high density areas.
  - d) Flight Timing
    - i) Thinking about arriving in a new time zone destination in morning/mid day to better acclimate with light signals from full spectrum sun.
- 3) During Travel Hacks
  - a) Fasting
    - i) The most effective travel hack. Will allow for a smooth transition into the new time zone and elevate anti-inflammatory ketone levels. Avoiding toxic airport/airplane food is a must + expending zero energy digesting will help your body focus on combating the oxidative stress of travel.
  - b) Blocking Artificial Light + nnEMFs
    - i) Wearing blue light blockers to avoid cortisol stimulating and circadian disrupting artificial blue light.
    - ii) Wearing long sleeved clothing, pants and hat to further protect the skin from artificial light.
    - iii) Wearing EMF blocking clothing such as silver lined getlambs hats, underwear, t shirts.
  - c) Water
    - i) nnEMFs and overall oxidative stress is very dehydrating. Imperative to hydrate with water that is alive...aka spring/mineral water. Pellegrino or evian is typically findable in most US airports.
    - ii) Bring exogenous mineral drops if you don't think you will have access to spring water.
    - iii) Bonus points for using Deuterium Depleted Water or Molecular Hydrogen tablets.
  - d) Methylene Blue
    - i) Ultimate travel supp. Works as an electron cyler to improve mitochondrial function and combat oxidative stress.
    - ii) Will help alleviate the low redox and hypoxic state that occurs during travel.
  - e) Other Supplements
    - i) Magnesium
    - ii) NAD+ Precursors
    - iii) Fulvic Acid/Shilajit
- 4) Post Travel Hacks
  - a) Sunlight
    - i) Get outside to get the MAIN input signal that will drive your circadian rhythm into the time zone you just arrived at.
    - ii) Take advantage of healing/restorative Red/NIR + blue light from the sun for wakefulness.
      - (1) Can use PBM device for increased RED/NIR exposure.
  - b) Grounding/Earthing
    - i) Another input signal to optimize circadian rhythm as proven with cortisol secretion studies.

- ii) Natural anti-oxidant that will improve redox that was lowered significantly from travel.
- c) Diet
  - i) Eat local + clean-ish upon arrival
  - ii) No/Minimal alcohol until acclimated
  - iii) Align carbs w/ season + locality
- d) Exercise
  - i) Prioritize light movement outdoors until acclimated, then resume more strenuous training if that is part of your routine
  - ii) Don't overdo it the day you step foot off of the plane.

### Affiliate Links Consolidated

Meraki Methylene Blue (TRISTAN15) (<https://www.merakimedical.com/>)  
Based Supplements Shilajit (TRISTAN10) (<https://basedsupplements.co/>)  
Earth Runners (<https://earthrunners.com/?rfsn=7459761.ab7e4e>)  
BlockBlueLight-(TRISTAN10) or (<https://www.blockbluelight.com/?ref=TRISTANSCOTT>)  
EMR-Tek (<https://www.emr-tek.com/discount/RYAN25534>)  
Rhizal Grounded Shoes (<https://t.co/UWTI9F2NOc>) (TRISTAN10)

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Cheers  
Tristan