Mastering Your Mindset

How to Overcome Fatigue and Maximize Your Energy Levels

with

Ari Whitten
Why the focus on energy levels?
“Energy and persistence conquer all things.”

– Benjamin Franklin
"If you don't have energy, you're gonna have no passion in your relationship ... If you don't have any energy, you can't do a great job with your kids because they have more energy than you do. If you don't have energy, you're not going to run your own business, much less multiple businesses. **Energy is life.**"

--Tony Robbins
Energy is the Crux of a Good Life

Energy levels are the FOUNDATION for your overall experience in life. Your mood, your vitality, your health, your body, your job, your relationships, and your happiness are all intimately tied to energy levels.
Here’s What You’ll Learn During This Presentation

• The 2 key principles of energy enhancement

• The most essential strategies you need to DOUBLE or TRIPLE your energy levels.
Here’s What You’ll Learn During This Presentation

• The 2 key principles of energy enhancement

• The most essential strategies you need to overcome fatigue and DOUBLE or TRIPLE your energy levels.
Why This Is Important To You NOW

If your energy levels are low, EVERYTHING in your life suffers. This presentation will show you how to fix it!
Is This For You?

• If you’re someone who is chronically fatigued and lacking energy and want to understand how to fix it, this is for you.
Is This For You?

- If you’re worried that the diet you’re on and all the supplements you’re taking aren’t helping you, then this is for you because you’re going to discover what type of diet and supplements can help fix your energy and what kind are just a waste of time and money. (Or be making you even WORSE! By the way, that’s much more common than you think).
Is This For You?

- If you’re a health conscious person who is already eating healthy and exercising, this is for you. And I promise you will learn at least a dozen new strategies to boost your energy levels even higher!
Is This For You?

- If you’ve got chronic fatigue syndrome or fibromyalgia or adrenal fatigue and you want to finally SOLVE it and get your life back, this is for you.
• Even if you are already healthy and you just want to be filled to the brim everyday with tons of energy so you’re ready to conquer the world and bring your best self into all your relationships, this is for you.
The Energy Blueprint

• In this presentation, I am going to unveil something called “The Energy Blueprint.”

• It is a specific set of factors that completely controls how your cells produce energy.
And once you understand exactly what these factors are... how they work together to amplify your cellular energy production... and how to implement them in your life...
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It can literally double or triple your body’s energy levels within a matter of weeks.
House Rules

• **No “magic bullets” “do nothing, get results.”** Many people are looking for some magical fairy dust where you pop some pill once a day and it fixes all your energy issues, this is not the place for it. These are real science-based strategies, and will require you to change certain habits or certain aspects of your environment.

• **No half-a$$ing it.** If you are not ready to actually make changes in your life and you are content to continue having poor energy levels and relying on caffeine to get through the day, then this is not for you. Hopefully you have your act together and you’re ready to make change and get serious results.

• **No “I knew that.”** Often times we blind ourselves by assuming we already know something or we’ve already seen it before. Don’t do that. I promise that no matter how well read you are on the subject of health, there are TONS of things in The Energy Blueprint system that you have no idea about. Guaranteed.

• **Most people who buy ANY “how to lose weight or increase energy” product will not end up improving their health or quality of life.** Lots of people who buy treadmills don’t lose weight, because it ends up becoming a clothes hanger instead of actually being used. So hopefully you’re in the group that’s actually committed to getting results. Because I want you to use the strategies I’m going to give you to dramatically enhance your life.
So for those of you who are still with me...
Here’s big problem #1 when it comes to energy levels...
Why I Created This Program

1. **Lack of energy is a modern epidemic of massive proportions.** In the U.S., over half the population struggles with daytime sleepiness, lack of energy, and fatigue. Diseases like chronic fatigue syndrome and fibromyalgia are skyrocketing. And almost EVERYONE would love to improve their vitality, mood and energy levels.

2. **Almost no one has any clue how to do anything about it!** The main response is just one new wacky diet after another, and the new dietary scapegoat du jour—fat, carbs, sugar, etc. Or just pseudoscientific nonsense—superfoods, “detoxes,” etc. But no real scientific solution to energy levels.
Over half the population struggles with daytime sleepiness, fatigue, and lack of energy!

Diseases like chronic fatigue syndrome and fibromyalgia are skyrocketing.

And almost EVERYONE would love to improve their vitality, mood and energy levels.
• Today, we have a massive epidemic of fatigue and exhaustion.
• And that is a HUGE problem, because energy levels are at the CORE of having a great life!
People are tired. They’re sick. They’re stressed. They’re exhausted. They’re anxious and depressed. They’re emotionally flat—bored and lacking passion. And just trying to drag themselves through another day with caffeine.

And it’s wrecking people’s lives.
Here are some scary stats to think about...

• In WebMD's annual Year in Health survey, **women across the U.S. named fatigue among their top five health concerns.**

• In the American Psychological Association's 2012 Stress in America survey, **45 PERCENT of women reported feeling chronically fatigued due to stress.**

• A survey commissioned by Legal & General found that 34 percent of the 5,000 people asked said that **chronic low-level, general fatigue was their BIGGEST health concern.**

• The Chartered Management Institute recently conducted a 'Quality of Working Life' report which showed that insomnia is widespread and more than **HALF of us experience feelings of constant tiredness at work.**
Simply put… chronic fatigue, daytime sleepiness, stress, anxiety, depression, exhaustion, and chronic lack of energy have become EPIDEMICS in our society!
That’s the first big problem...
Here’s the even BIGGER PROBLEM...
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Here’s the GOOD NEWS...
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You have massively abundant energy AVAILABLE to you. A level of vitality and energy not just 10 or 20% higher than what you have now, but MASSIVELY higher. You can access a level of energy that will fill you with drive, motivation, vitality, and passion every single day!
• We all want to have enough gas in the tank to follow our dreams, we want to feel agency (like we have a control and mastery over our environment and like we have what it takes to MAKE THINGS HAPPEN in our lives), we want to feel powerful... we want to feel PASSION...

• ...and the CHALLENGE, the big obstacle that gets in the way of us living the life we want to live... is that we are deficient and lacking in this thing called ENERGY!
All of the stuff that your body needs to do to FUNCTION and of course, TO THRIVE... COMES FROM THE ENERGY BEING PRODUCED IN YOUR CELLS.
Energy and vitality is what allows us to not only cope with all the things life throws at us, but to thrive in the face of it all... to pursue our goals and make them a reality... and to inject passion and ALIVENESS in everything we do in life.
To put this very simply...

People who have BETTER ENERGY LIVE BETTER LIVES!
Energy is the crux of living a good life.
So I want you to STOP and think about something for a moment...
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What would your life look like if you had DOUBLE the physical energy you have now?
WHEN IT COMES TO ENERGY, THERE ARE 2 WAYS OF BEING IN THE WORLD
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1. **DRAGGERS**: First, you have the NORM. You have the majority of people suffering from chronic lack of energy and daytime sleepiness. Relying on caffeine to get through the day, waking up groggy and pressing the snooze button, not being able to get going without morning coffee, needing to snack throughout the day to keep energy levels up... Tired, overworked, depressed, anxious, stressed, exhausted and BURNT OUT... dragging themselves through each day.

2. **PEAK PERFORMERS**: Then you have those select few people who just seem to be BURSTING with energy and life... a level of superhuman energy... people like Richard Branson, Oprah Winfrey, and Tony Robbins. They're the ones that always seem HAPPY, ready to take on a challenge, climb to the top of the mountain, and get it done with a smile. They're the Energizer Bunnies who seem to accomplish more in the first few hours of the day than most of us complete in a week. We say things to them like, "Where do you get your energy?" and "I don't know how you do everything you do."
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YOU HAVE A CHOICE:

You can exist in either of these two states. The choice is up to YOU.
Let me tell you a little bit about my story and how I came to discover The Energy Blueprint...
MY STORY

In my work over the last decade as a nutritionist, trainer, and author, I have seen fatigue and chronic lack of energy become an epidemic.

I get dozens of emails DAILY from people who want help overcoming fatigue and who want to know how to increase their energy levels.
My original specialty was fat loss, not energy levels. For over a decade, I have worked with people to dramatically transform their bodies. I even wrote a #1 bestselling book on the subject that is now required reading material in many doctors’ offices and dieticians’ offices. But I wasn’t always an expert on energy levels...when it came to people struggling with energy levels, I would just tell people the typical stuff everyone has already heard a million times before (eat right, exercise, lower stress, drink lots of water, get 8 hours of sleep, etc.).
So when people came to me looking for advice on overcoming fatigue and enhancing energy levels, I wanted somewhere to refer these people. Some great product for energy enhancement or some person who was an expert on energy levels...Someone I could endorse, and who I knew was providing a comprehensive SCIENTIFIC approach to energy enhancement.
So here’s what I did...

I spent literally MONTHS of reading various people’s articles online, watching videos, buying people’s products, and reading people’s books on the subject of energy enhancement... believe it or not, I actually went out and purchased literally EVERY product in existence on the subject of energy levels—books, seminar recordings, and digital audio and video products. I spent literally THOUSANDS of dollars of my own money and I spent HUNDREDS of hours obsessively studying all these products...
At the end of all that—after spending all that money and all that time to learn everything from everyone out there teaching on the subject of energy enhancement--what I ultimately discovered is...
...no one out there was really addressing the fatigue epidemic with a comprehensive *SCIENTIFIC system to boosting their energy levels*!
Almost everything out there on the subject of increasing energy levels was either common sense, or just a bunch of pseudoscientific junk!
Some of these products had little nuggets of good information. But for the most part, it was either ...
the same old common sense advice everyone has already heard a hundred times (eat nutritious food, do exercise, drink lots of water, de-stress, and get plenty of sleep) or...
it was just made-up pseudoscientific nonsense that has no basis in science and won’t work to enhance energy levels.

Even worse, there were MANY programs giving advice that goes directly AGAINST the science on the subject, and if anything, will actually make the body WEAKER and MORE FATIGUED.
And that’s why... I took it upon myself to develop a truly SCIENTIFIC and evidence-based system for optimizing energy levels.
And by the way, I certainly can’t take all the credit because I didn’t do it alone... I was smart enough to reach out to several world-renowned experts in fields from nutrition to circadian biology (the body’s biological clock) to physicians on the front lines of treat chronic fatigue to renowned neuroscientists... All of whom made amazing contributions to the development of the system I developed.
Now... here’s the thing... I NEVER imagined that it would take well over two YEARS of FULL-TIME research into the science of energy levels, collaboration with several other scientific experts, and seemingly ENDLESS hours of experimentation with HUNDREDS of my clients to do it...
But eventually I developed something that I knew could help transform the lives of thousands of people...
A specific formula grounded in proven scientific research that cracked the code for energy enhancement.
It’s called
THE ENERGY BLUEPRINT
Today, I am going to tell you about the two fundamental principles of that system.
Before I tell you about that...

Let’s talk about what’s out there right now on the subject of energy levels...
How Most People Are Trying to Cope with Low Energy Levels

“We live in a society where people are always looking for the next sports drink, energy bar or cup of coffee that will give them the extra edge to get through the day.”

-- James Levine, MD

“We have an energy crisis of historic proportions going on. We are reaching for anything that will give us energy—and we’re over-relying on coffee now more than ever.”

-- Jacob Teitelbaum, MD
Here’s What’s Out There...

• Nowhere online in the health realm is there more ignorance, and less scientific understanding than in the realm of ENERGY.
• If you look to articles online, you’ll see lots of articles on energy telling you to “do exercise” or “eat carbs instead of fat” or “eat fat instead of carbs” or “take a nap” or “drink coffee” or “stop drinking coffee” or “eat more protein” or “eat a low protein raw vegan diet” or “get rid of sugar” or “take this special supplement” etc.

• Not only is most of it contradictory, but it’s really just all the typical common sense diet and exercise advice you’ve already heard a thousand times before.
Same old advice you’ve already heard...

• eat healthy nutritious foods
• do exercise...
• lower your stress levels...
• drink lots of water...
• take this herb...
• take my special supplement...
• eat your veggies...
• take your vitamins and minerals...
• go low-carb...
• don’t eat sugar or gluten...
• cut out caffeine...
• and sleep 8 hours every night
Here’s What Else is Out There...

- Our main competitor in this niche is a guy who is basically just promoting raw veganism.
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  • Get rid of sugar
  • Get rid of dairy
  • Get rid of gluten
  • Get rid of coffee and caffeine
  • Go vegan
  • Eat 5-6 small meals throughout the day
  • Drink green juices
  • Do exercise
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• If you look to articles online, here’s what you’ll find:
  • Don’t skip meals (eat breakfast)
  • Reduce stress
  • Take a nap each day
  • Do exercise
  • Drink more water
  • Snack between meals
  • Use caffeine (or don’t, depending on who you ask)
  • Take a multivitamin
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If you don’t believe us, look it up for yourself online!

This is pretty much ALL of the information you’ll find online about boosting energy levels.
Then You Have Alternative Practitioners Who Focus on “Adrenal Fatigue”...

If you regularly notice one or more of the following symptoms, you’re very likely to get diagnosed with “adrenal fatigue” by the vast majority of alternative medicine practitioners:

– You feel tired frequently and lack energy.
– You have trouble getting up in the morning, even when you go to bed at a reasonable hour.
– You are feeling rundown or overwhelmed.
– You have difficulty bouncing back from stress or illness.
– You have trouble sleeping through the night.
– You crave salty and/or sweet snacks.
The Same Factors that are Claimed to Cause "Adrenal Fatigue" Also Cause Regular Fatigue
Once You Get the Adrenal Fatigue

Once they diagnose you with “adrenal fatigue,” here’s the treatment you can expect to get from your alternative medical practitioner to cure your adrenal fatigue:

• Eliminate sugar, dairy, gluten, caffeine, etc.
• Take adaptogenic herbs (rhodiola rosea, ashwagandha, ginseng, ginkgo, etc.)
• Take lots of vitamin C
• Take lots of B vitamins
• Sleep 8 hours each night
• Lower your stress levels
• Take adrenal gland extracts
• Take magnesium
• Eat a low carb diet (or eat a high carb diet, depending on the particular dietary persuasion of your chosen alternative health practitioner)
• Take other supplements to lower your body’s stress hormone production, like licorice or phosphatidyl serine
Then you have the MDs

For treating chronic fatigue and fibromyalgia, conventional medical treatment is notoriously ineffective and there is a severe paucity of research-proven methods for improving energy levels.

- One exception: When fatigue is occurring as a side effect of some other condition, such as an infection, they can be effective in helping.
- But overall, conventional mainstream medicine has virtually nothing to offer those looking to improve their energy levels.
- You can expect to get sleeping pills, antidepressants, and anti-anxiety drugs. Just to treat **SYMPTOMS**.
Both the MDs and alternative practitioners (a.k.a. adrenal fatiguers) are operating in a **pathology-focused paradigm**.

They diagnose a sickness and then seek to treat it with either drugs or supplements.
Summing up

• You have the typical common sense diet and exercise focused advice that we’ve all heard and tried many times before.

• You have the adrenal fatiguers who will send you home with a laundry list of supplements to take to fix your adrenals.

• You have MDs, who will most likely send you home with either nothing or an antidepressant.
I just summed up pretty much everything you can find on the subject of improving your energy levels. That’s pretty much everything out there.
And I did NOT like what I was seeing out there...
I was sick and tired of hearing all the same old stuff that everyone has already heard a thousand times before...
I was sick and tired of hearing all the same old stuff that everyone has already heard a thousand times before...

- Eat a nutritious diet
- Do exercise
- Sleep 8 hours each night
- Get rid of gluten
- Get rid of dairy
- Get rid of sugar
- Get rid of coffee and caffeine
- Go vegan
- Eat 5-6 small meals throughout the day
- Reduce stress
- Take a nap each day
- Drink more water
- Take a multivitamin
I was sick and tired of people just being handed a bunch of supplements or drugs to take to fix some SYMPTOMS without actually addressing the root cause of the problem...
So I decided to create...

**the first and only scientific, evidence-based blueprint to enhancing energy levels.**
So let’s get into what that system is all about...

I’m going to tell you about the two most essential principles you need to implement in your life if you want to enhance your energy levels.
What Makes Us Healthy?

- Exercise
- Low Stress
- Sleep
- Fresh air
- Sunlight
- Hydration
- Good nutrition
Really there are TWO separate kinds of things that are healthy for us:

1. Cellular Regenerators
   - Sleep
   - Adequate food intake (calories + macros/micros)
   - De-stressing
   - Play and relaxation
   - Adequate water intake
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1. Cellular Regenerators
   - Sleep
   - Adequate food intake (calories + macros/micros)
   - De-stressing
   - Play and relaxation
   - Adequate water intake

2. Metabolic Stimulators/Stressors
   - Exercise (all forms)
   - Sunlight
   - Cold
   - Heat
   - Phytonutrients
The Two Key Principles of High Energy Levels

Cellular Regeneration

Building the Cellular Engine
The magic key to high energy levels in the pulsation and cycling between these states.

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What creates fatigue is the loss of one or both of these two states.
Now let’s talk about each of these two principles more in-depth...
The Foundational Cell Regeneration Strategies
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1. Adequate calories, macros, and vitamins/minerals
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1. Adequate calories, macros, and vitamins/minerals
2. Circadian rhythm habits
The Foundational Cell Regeneration Strategies

1. Adequate calories, macros, and vitamins/minerals
2. Circadian rhythm habits
3. Sleep hygiene habits
The Foundational Cell Regeneration Strategies

1. Adequate calories, macros, and vitamins/minerals
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4. Gentle movement
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5. Anti-stress habits
6. Work-rejuvenation rhythm
The Foundational Cell Regeneration Strategies

1. Adequate calories, macros, and vitamins/minerals
2. Circadian rhythm habits
3. Sleep hygiene habits
4. Gentle movement
5. Anti-stress habits
6. Work-rejuvenation rhythm
7. Optimized autophagy
The Foundational Cell Regeneration Strategies

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4. Gentle movement
5. Anti-stress habits
6. Work-rejuvenation rhythm
7. Optimized autophagy
One of the Most Powerful Anti-Aging and Energy Boosting Strategies: Amplify and Maintain Healthy Autophagy
• Most of us who are into health and fitness also want to know how we can inhibit the aging process, so as to have a healthy old age free of illness, and hopefully live a long time. We’re aware of the usual healthy practices such as clean diet, exercise, a good night’s sleep, limiting the use of alcohol, ensuring we’re well nourished with vitamins, and so on. But we still age. What further measures can we take to slow aging and prevent age-related decrease in energy (or even enhance our energy levels as we age)?

• Enhancing autophagy is one of the absolute most powerful anti-aging and energy building strategies....
**Induction by autophagy enhancers**

- Phagophore
- Mutant aggregate-prone proteins

**Autophagy**

- Autophagosome
- Autolysosome
- Lysosome

**Degradation of mutant aggregate-prone proteins**

**Protection in various models of neurodegenerative diseases**

**Reduction of mutant protein-associated aggregates and toxicity**
Autophagy is the process of cellular “self-eating” that occurs in all animals regularly, and is increased by fasting. In aging, cellular “junk”, such as malfunctioning mitochondria, misfolded proteins, and damaged organelles accumulate, causing the maladies of aging. But this junk accumulates precisely because the organism is unable to initiate and maintain autophagy.
• When autophagy is not working well, that means you are functioning TODAY on YESTERDAY’S CELL COMPONENTS.
  – That means proneness to disease and LOWER ENERGY levels.
• This strategy is based on the critical knowledge that exceptionally long-lived lab animals, those that have lifespans that are double and more than those of the shorter-lived varieties, have mutations that increase the process of AUTOPHAGY.

• These animals that live twice as long or more than normal animals do eventually die. But the fact that increased autophagy extends their lives shows that it is the most important, the limiting factor in lifespan.  
  – Again, the more junk that builds up and the faster it builds up, not only ages you, but damages your cells’ ability to produce energy efficiently.
• In virtually all organisms tested so far (and there’s no reason to believe that humans are an exception) intermittent fasting extends lifespan, often dramatically.

• But why does IF do this? Many animal studies indicate that...
• In virtually all organisms tested so far (and there’s no reason to believe that humans are an exception) intermittent fasting extends lifespan, often dramatically.

• But why does IF do this? Many animal studies indicate that AUTOPHAGY is the key mechanism.
• It’s been shown that cells from long-lived individuals, i.e. centenarians, have higher rates of autophagy than the merely old (75 years).
• Conversely, diminished autophagy plays a major role in aging.
• Think about why young people (children) are bursting with energy, and why we lose energy as we get older...
• Maintaining clean cells is important to slowing aging and maintain healthy mitochondria (i.e. high energy levels) as we get older.
The mitochondrial theory of aging attempts to account for aging by the increased number of damaged, malfunctioning, and free-radical-producing mitochondria.

- However, under normal, healthy conditions, autophagy removes and recycles these mitochondria, so a more fundamental reason for aging is repressed autophagy.
• KEY POINT: Autophagy occurs when blood levels of amino acids DROP. I.e. It occurs AWAY from FEEDING periods, during FASTING periods.

• In other words, it usually occurs while we sleep!
The key: to avoid aging and fatigue, one must go through periods of time of a strong breakdown in tissue (autophagy), followed by a rigorous building up again of the same tissue (anabolism).

In this way, the body is rejuvenated, since the tissues that are broken down are old, damaged mitochondria, misfolded proteins, and other cellular debris.

And new healthy mitochondria (cellular power plants) are BUILT!
3 Ways I Want to Share With You To Amplify Autophagy and Boost Your Cellular Rejuvenation

1. Amplify circadian rhythm
2. Ample fasting window each night
3. Water at the right time
Autophagy and Circadian Rhythm

• Normally, autophagy in humans rises and declines with a strong daily rhythm. Since autophagy is upregulated by fasting (or starvation), it strongly increases at night and in the early morning, since no food is taken during the night.

• **Humans and other organisms exhibit a strong diurnal rhythm of anabolism and catabolism. Both are equally necessary to life and health.** With disrupted circadian rhythm, however, that rhythm declines in amplitude. At night, when autophagy should be strongly activated, it is only weakly so or not at all. In the day, when anabolism should be at full speed, aging weakens the process.

• Also due to the circadian rhythm in autophagy, levels of glutathione, a tripeptide that is the body’s most important antioxidant, rises and falls. The liver, for example, may contain as much as 100% more glutathione during the day as in the early morning.

• As a consequence of the age-related decline in autophagy, the amino acids that are necessary for the synthesis of glutathione fall, and not enough glutathione is produced. Since glutathione is an important antioxidant, if cells don’t make enough, free radicals become abundant and a state of oxidative stress ensues, and basically the body cannot regenerate properly each night and you AGE faster and your energy levels slowly erode.

• Oxidative stress in turn causes autophagy to decline, so we have a vicious cycle of less autophagy, more oxidative stress, even less autophagy, and so on.

• **The more you amplify this circadian rhythm of anabolism and catabolism, the more you preserve effective autophagy, the more you enhance energy levels and live long.**
Autophagy and Circadian Rhythm

Disrupted circadian rhythm → Blunted diurnal cycling of anabolism and catabolism → Impaired autophagy → Low energy and lifespan

Optimal circadian rhythm → Optimal diurnal cycling of anabolism and catabolism → Enhanced autophagy → High energy and lifespan
The main signal for autophagy to start and to increase is decreased concentration of the amino acid leucine in the blood. Readers may recognize leucine as a key signaling molecule for the growth of muscle; the opposite occurs with leucine too, namely decreased concentration signals for muscle to be broken down.

Here’s the key point. As mentioned, autophagy is regulated by levels of leucine in the blood, but when our circadian rhythm is dysregulated or we’re unhealthy or we’re older... the ability to respond to leucine by increasing autophagy decreases. The cells in an aging or unhealthy body simply cannot turn autophagy on at the same level that would turn it on in youthful cells.

Here’s the trick: decrease levels of leucine during the fasting phase so that even with diminished autophagy capacity, autophagy is started.

How do you do this? Very simple: DRINK WATER at night or in...
Slow Aging By Amplifying Autophagy (with WATER)

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• Here’s the trick: decrease levels of leucine during the fasting phase so that even with diminished autophagy capacity, autophagy is started.

• How do you do this? Very simple: DRINK WATER at night or in the morning. This will dilute the bloodstream and hence the leucine in it, causing autophagy to be started and/or increased. Thus more cysteine will enter the blood, glutathione will be made from it, and oxidative stress decreased.
High alertness: 10:00
Highest testosterone secretion: 09:00
Bowel movement likely: 08:30
Melatonin secretion stops: 07:30
Sharpest rise in blood pressure: 06:45
Lowest body temperature: 04:30

Best coordination: 14:30
Fastest reaction time: 15:30
Greatest cardiovascular efficiency and muscle strength: 17:00

18:30 Highest blood pressure
19:00 Highest body temperature

21:00 Melatonin secretion starts
22:30 Bowel movements suppressed

00:00 Midnight
02:00 Deepest sleep
06:00
09:00
12:00 Noon
18:00
22:30
How Artificial Light Disrupts Autophagy

One of the major factors in illness, disease, obesity, and fatigue in the modern world is chronically disrupted circadian rhythm, or the body clock.

A big reason why disrupted circadian rhythm is linked to so many diseases from cancer, to Alzheimer’s, to obesity, to fatigue...

Is that it REPRESSES autophagy.
How Artificial Light Wrecks Your Body and Your Energy
How Artificial Light Wrecks Your Body and Your Energy

Circadian Disruption + Decreased Prolactin
How Artificial Light Wrecks Your Body and Your Energy

Circadian Disruption + Decreased Prolactin

Inhibited growth hormone surge + inhibited autophagy
How Artificial Light Wrecks Your Body and Your Energy

Circadian Disruption + Decreased Prolactin

Inhibited growth hormone surge + inhibited autophagy

Accelerated aging + Blunted energy levels
Snacking after dinner... Effect on circadian cycles
Snacking after dinner... Effect on circadian cycles

If you choose to eat within 3-4 hours of sleep you will SUPPRESS the hormones that are needed to turn on autophagy at night.
Late Dinner Predisposes to Fat Gain

- Do you eat dinner late at night? If so, you may be subtly shifting your body towards fat gain.
- "Rika Yokoyama, MS, and colleagues from the Health Care Food Research Laboratories of the Kao Corporation in Tokyo, Japan, compared the effects of early and late meals in a crossover study of 10 healthy Japanese men. The men consumed lunch at 1:00 pm and breakfast the following day at 8:00 am; they had dinner at 7:00 pm in the early dinner (ED) condition and at 10:00 pm in the late dinner (LD) condition. All meals were the same, and were consumed in a respiratory chamber, where the subjects' energy expenditure and fuel utilization were measured from 12:30 pm until 11:30 am the next day.
- In the ED condition, average 23-hour energy expenditure was 1885 (±231) calories; in the LD condition it was 1837 (±228) calories (P < .05).
- "We saw a sharp decline in postprandial energy expenditure, or diet-induced thermogenesis (DIT), during sleep after the LD condition. In the ED condition, the decline was more moderate," Ms. Yokoyama told Medscape Medical News. "Presumably, that was because in the ED condition, more time elapsed between dinner and bedtime. However, we could not identify the reason the DIT declined so sharply during sleep after the late dinner." Nor could the differences be traced to variations in physical activity; infrared motion sensors in the respiratory chamber did not detect any changes in physical activity between the conditions," she explained.
- Insulin and blood glucose levels were markedly higher in the LD than in the ED condition after dinner (P < .01). Free fatty acids were also higher in the LD condition, and remained elevated until breakfast the following day. The authors concluded that eating dinner late was associated with lower total energy expenditure, hyperinsulinemia, and hyperglycemia, which over time could result in obesity."
• Phenomenal new study!
• “A Smartphone App Reveals Erratic Diurnal Eating Patterns in Humans that Can Be Modulated for Health Benefits.” (Published in the journal Cell Metabolism).
• They used an app to monitor the typical feeding patterns of most Americans, and found some very important things that many other study designs have not been able to pick up.
Here's some of the most important findings:
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1. **Most people have a daily feeding window of 15 hours or longer.** (A LONG feeding window that extends almost from immediately after morning wake up to the moments before sleep).
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2. **Most people fast each day only for the time they're in bed** (just 8 or 9 hours). Note that for most people, this period of not consuming coincides with complete sedentariness (sleep), which all but eliminates any extended periods of BURNING off energy without consuming any. Most people are essentially ALWAYS in a state where their energy stores are topped out, and they never really put their body in a state where tapping into bodily reserves gets switched on for any significant length of time. It's sort of like stopping at the gas station after every 25 miles you drive. You're always topping it off without ever really fully using the tank of gas that's in there.
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5. **They found that the majority of calories people consume is happening in BETWEEN MEALS as snacks.** (And many people are unconscious of how much they're actually consuming in between meals).

6. **Shorter feeding windows have big benefits!** When overweight individuals SHORTENED their feeding window from greater than 14 hour feeding windows to 10-11 hour feeding windows, they LOST FAT, SLEPT BETTER, and IMPROVED THEIR ENERGY.
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3 Ways To Amplify Autophagy and Boost Your Cellular Rejuvenation

1. Amplify circadian rhythm
2. Ample fasting window each night
3. Water at the right time
This is just ONE of the Foundational Cell Regeneration Strategies

1. Adequate calories, macros, and vitamins/minerals
2. Circadian rhythm habits
3. Sleep hygiene habits
4. Gentle movement
5. Anti-stress habits
6. Work-rejuvenation rhythm
7. Optimized autophagy
Step 1 of Optimal Energy Levels is Having Solid Cell Regeneration Habits

1. Adequate calories, macros, and vitamins/minerals
2. Circadian rhythm habits
3. Sleep hygiene habits
4. Gentle movement
5. Anti-stress habits
6. Work-rejuvenation rhythm
7. Optimized autophagy
STEP 2: BUILDING YOUR CELLULAR ENGINE
Mitochondria are the part of the cell that “burn” the calories (carbs and fats) and turn them into energy for the cell. We have 500-2,000 per cell!

What are Mitochondria?
The Cellular Energy Generator!

Fuel Sources
- Glucose
- Fatty Acids
- Amino Acids

\[ \text{Glucose} \rightarrow \text{Fatty Acids} \rightarrow \text{Amino Acids} \rightarrow \text{ATP} \]
Symptoms of Low Mitochondrial Function

If you answer yes to these, then that may indicate low mitochondrial function:

• Do you get tired often?
• Do you have a low metabolism?
• Do you lack energy in the day?
• Do you have a disturbed circadian rhythm? (sleepy during the day and/or have trouble sleeping at night)
• Do you have chronic inflammation?
Now, here’s the really incredible part that most people don’t know... Depending on your lifestyle habits and environment, you have the ability to dramatically increase the SIZE and POWER of the mitochondria in your cells. And you even have the ability to CREATE and BUILD NEW MITOCHONDRIA FROM SCRATCH, and dramatically increase the amount of these power plants in your cells.
So think about that for moment...in most areas of life, we can only get 10 or 20% improvement, but with energy levels, you can double or TRIPLE your energy levels.

Now you might start to see how this is possible.
If you are looking at the cellular engine in our cells, and you have the ability to DOUBLE the SIZE and POWER of the mitochondria of your cells (the place where energy is being produced), then it makes logical sense that you can DOUBLE your energy levels.
But it actually goes beyond that... remember, you also have the ability to literally create MORE mitochondria from scratch.
So not only are you building bigger and more powerful cellular power generators, but at the same time, you can actually go from having say 500 little cellular engines in your cell to 1,000. Think about that... you can go from 500 SMALL little energy generators in each cell to 750 or 1,000 BIG POWERFUL ENERGY GENERATORS!
Why is Mitochondrial Biogenesis so Important to Increasing Energy Levels?

- Mitochondria are the cellular energy generators!
- We have over between 500-2,000 per cell

Bigger mitochondria and MORE mitochondria → Bigger Cellular Engine → Higher capacity to PRODUCE ENERGY!
More Mitochondria = Bigger Cell Engine!

With well designed strategies, you can go from 500 mitochondria in your cells to 750 or 1,000 or more!

When you increase the amount of mitochondria in your cells and the SIZE and POWER of those mitochondria, you can DOUBLE the energy producing capacity of your cells!
The Hidden Key To High Energy Levels: Mitochondrial Growth and Biogenesis
The bottom line here is that if you can DOUBLE or TRIPLE the SIZE and POWER of your cellular energy generators ... which is like taking out your car’s engine and replacing it with a bigger, far more powerful engine... Basically, you can DOUBLE or TRIPLE the amount of energy your body is capable of producing, and you can DOUBLE or TRIPLE your energy levels.
The problem...

- The only problem is they are very sensitive to damage...from uncontrolled oxidative stress, which results from toxic insults, infections, allergens, stress, and just eating too much poor quality food.

- But even more importantly (and left out by most people)...the biggest factor is that, much like a muscle, mitochondria will SHRINK (atrophy) and become WEAK when not stimulated through HORMETIC STRESSORS!
The problem...

• The only problem is they are very sensitive to damage...from uncontrolled oxidative stress, which results from toxic insults, infections, allergens, stress, and just eating too much poor quality food.

• But even more importantly than that ... the biggest factor is that, much like a MUSCLE, mitochondria will SHRINK (atrophy) and become WEAK when not stimulated through HORMESIS!
What the heck is HORMESIS?
One of the most important—if not the most important—strategy for health and energy enhancement.

That which does not kill us makes us stronger

-Friedrich Nietzsche
Candle vs. Fire
(a metaphor for understanding how hormesis works)

“Wind extinguishes a candle and energizes fire. Likewise with randomness, uncertainty, chaos: you want to use them, not hide from them. You want to be the fire and wish for the wind.”

-- Nassim Nicholas Taleb
What is Hormesis?

Hormesis is the process by which a mild or acute stressor increases resistance to other stressors and increases the health, resilience, and vitality of the organism.

• It can increase resistance to a variety of stresses, not only the one to which you are exposed.

"What doesn’t kill us makes us stronger."

FRIEDRICH NIETZSCHE
Hormesis is More Familiar to You Than You Realize

- It might sound like a foreign concept, but you're more familiar with it than you think.
  - Exercise is a form of hormesis.
- It's a stress placed upon the body that increases resistance to a number of other stressors: physical exertion, cardiovascular disease, depression, diabetes, age-related cognitive decline, neurodegenerative disease, etc.
• Hormesis is basically introducing an acute stress (lower dose stressor) to the body that stimulates the body to adapt and grow more fit to be prepared for greater loads of that stressor.

• By being prepped, the body can be shifted into a state of higher performance as it makes adaptations that benefit whole organism health.
Stress Tolerance is The KEY to Longevity

• From the discussion section of one scientific study on the subject:
  • “Stress tolerance and lifespan extension are remarkably correlated. The contradictory extension of lifespan by ostensibly deleterious conditions, and the concomitant induction of stress tolerance, suggests that lifespan extension may occur through the hormetic induction of damage-buffering cytoprotective mechanisms. [...]”
  • Lifespan poses an evolutionary conundrum, as the genetic determination of lifespan ostensibly suggests post-reproductive selection. Our data suggests that lifespan-determining genes do not specify lifespan per se, but rather the activity of damage-buffering cytoprotective pathways normally engaged only in response to stress stimuli, such as toxins.”
  • These stress responses are activated in the face of potentially damaging stimuli, such as exercise, toxins, fasting, and solar radiation.
  • If one wants more energy, greater vitality and a longer life, activation of these responses on a regular basis is the way to go.
Hormesis is The Body’s Way of Adapting to a Harsh Environment

The mechanism of hormesis appears to be overcompensation to re-establish homeostasis - which is a technical way of saying that an organism responds to small stresses by becoming more robust to adapt to a challenging environment.
In a larger sense, hormesis may help explain why people who lead strenuous lives with plenty of moderate physical challenges may be healthier and live longer than those in more comfortable circumstances.
BOTH TOO LITTLE AND TOO MUCH STRESS ARE PROBLEMATIC
The Paradigm Shift

• There are both “good” and “bad stressors.”
• We NEED ample exposure to hormetric stressors to be optimally healthy and energetic!
  – (but BRIEF exposures, not chronic exposure!)
Hormesis may be the single most important strategy to increase your metabolic health and boost energy levels.
Hormesis is the basis on which any number of inputs causes better health.

It might not be going too far to say that hormesis is the very basis of health!
• Any input that causes better health, inputs such as exercise, fruits and vegetables, cold showers, intermittent fasting and calorie restriction, ionizing radiation from the sun, all of these work by producing a stress, hence they work by hormesis.
  – (It might interest you to know that fruits and vegetables are health-giving precisely because they contain small amounts of toxic phytochemicals, from which the body must defend itself, broccoli being a prime example.)

• The opposite of producing hormeric stress can be seen in the couch potato lifestyle that leads to obesity, diabetes, heart disease; failure to subject the body to the right amount of stress produces ill health.
The Age of Hormesis and The Age of Fragility
Our human ancestors lived and survived in ages when food may have often been hard to come by, when exercise in the form of walking, hunting, building, gathering, and so on were daily required activities, and in which they ate plants that contained toxins. It stands to reason that we’re adapted to these conditions, and any deviation from them is potentially injurious to health.
The Age of ANTI-Hormesis (Fragility)

We now live in an age of, we might call it, anti-hormesis. Exercise is no longer a requirement, food is available whenever we want it, and a junk food diet excluding dietary phytochemicals is the norm for many.

As a result, we have the obesity epidemic, rampant diabetes and heart disease, and all the rest.
EVOLUTIONARY PERSPECTIVE: Not only are we designed to survive stressors, but to THRIVE with them!

- In order to survive and reproduce, our ancestor hominids spent most of their waking hours working to find food, either by ‘grazing’ on plants or by hunting animals.

- They were REGULARLY exposed to physical activity, occasional fasting (due to food scarcity), noxious plant phytochemicals and the elements (both heat and cold).

- ALL of these are hormetic stressors that not only don’t harm us, but have PROFOUND health BENEFITS!
EVOLUTIONARY PERSPECTIVE: Not only are we designed to survive stressors, but to THRIVE with them!

• Intermittent fasting protects against obesity, diabetes, cancers, neurodegenerative diseases, and can extend life in experimental animals by 30%.
• Exercise does much the same, and also improves neural connections and number; those who exercise regularly can literally expand their brains and cognitive capacity, i.e. intelligence.
• Another example of hormesis is dietary phytochemicals, which are actually “noxious”. Cold, heat and other hormetic stressors can also stimulate a lot of the same molecular pathways as exercise.
Now, here’s an important point to understand: It’s not just exercise that does this—lots of things do!

And by exposing your body to these forms of hormesis, your body makes adaptations that make it more energetic, more resilient, and healthier. (Just like with exercise!)
Examples of Hormesis

1. Exercise (all subtypes)
2. Intermittent fasting
3. Intermittent nutrient cycling (i.e. carbs/fats/proteins)
4. Cold
5. Heat
6. Red and near-infrared light
7. Hypoxia
8. Oxygen bankruptcy
9. UV light
10. Xenobiotics (caffeine, nicotine, alcohol, many drugs)
11. Dietary phytochemicals (xenohormetins)
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• All of these have between dozens and THOUSANDS of studies showing proven health benefits.
• Question: How many of these do you think most people use?
Having MULTIPLE layers of hormesis in your life is a major KEY to optimal health and energy.
How Does Hormesis Relate to Energy Levels?

Simple: The body responds to hormetic stressors by BUILDING UP the CELLULAR ENGINE!
  – It builds bigger, more powerful mitochondria, and more of them!
  – More mitochondria and more powerful mitochondria = bigger cell engine = more energy!
Here’s the KEY POINT:

The more your body has been exposed to hormetic stressors and had the chance to adapt to them, the more resilient your body becomes.

...which means the more optimal your metabolic health is, the more resistant to disease your body is, and the more cellular energy your cells produce and **the more energy you feel**.
Ample exposure to hormeric stressors → Increased metabolic health → Increased capacity of cells to produce energy → Optimal energy levels

Inadequate exposure to hormeric stressors → Decreased metabolic health → Hindered capacity of cells to produce energy → Fatigue
The Fragile-Bulletproof Spectrum

Avoidance of all stressors

Regular systematic exposure to a wide variety of hormetic stressors
Again, there are LOTS of Different Types of Hormesis
(and it would require many hours of lecture to go over all of them)

- Exercise
- Intermittent fasts
- Cold
- Heat
- Red light
- Hypoxia
- Oxygen bankruptcy
- Dietary phytochemicals (xenohormetins)
So let’s just explore ONE of these for this video, to give you a powerful new strategy to increase your mitochondria:

• Exercise
• Intermittent fasts
• Cold
• Heat
• Red light
• Hypoxia
• Oxygen bankruptcy
• Dietary phytochemicals (xenohormetins)
What Type of Exercise is Best for Mitochondrial Biogenesis?
One of the most profound adaptations to endurance training is increased mitochondrial function and content within the exercising muscles. Mitochondrial quality and quantity are closely related to several of the positive health effects reported after training. High mitochondrial content strongly correlates with muscle oxidative capacity and endurance performance. Even though it is well known that endurance training increases mitochondrial content, it is unclear which type of training is the most efficient to promote mitochondrial biogenesis. Therefore, the basis for current exercise recommendations relative to mitochondrial biogenesis is poor or absent. Thus, the main objective of this thesis was to evaluate the effect of different training strategies on mitochondrial biogenesis.
PGC-1α is a key regulator of mitochondrial biogenesis and the expression of PGC-1α can therefore be used as a marker of this process.
Study I: The expression of PGC-1α and related genes were examined after 90 min of continuous and interval exercise in untrained subjects. The exercise protocols influenced the expression of genes involved in mitochondrial biogenesis and oxidative metabolism in a similar manner. Both interval and continuous exercise were potent training strategies for relatively sedentary individuals.
Study II: The expression of PGC-1α and related genes were examined after low-volume sprint interval (SIT) and high-volume interval (IE) exercise in highly trained cyclists. SIT induced a similar increase in PGC-1α expression as IE despite a much lower time commitment and work completed. Sprint interval exercise might, therefore, be a time efficient training strategy for highly trained individuals.
Study III: The expression of PGC-1α and related genes, as well as the activity of upstream proteins, were examined after concurrent (ER: cycling + leg press) and single-mode (E: cycling only) exercise in untrained subjects. PGC-1α expression doubled after ER compared with E. It was concluded that concurrent training might be beneficial for mitochondrial biogenesis in untrained individuals.
Study IV: The expression of PGC-1α and related genes were examined after exercise performed with low (LG) and normal (NG) muscle glycogen in well-trained cyclists. PGC-1α expression increased approximately three times more after LG compared with NG. This finding suggested that low glycogen exercise is a potent inducer of mitochondrial biogenesis in well-trained individuals.
Summing Up: Exercise and Mitochondrial Biogenesis
Summary: Exercise and Mitochondrial Biogenesis

Untrained subjects

• Continuous and interval exercise have a similar effect on PGC-1α, and other genes regulating mitochondrial biogenesis, if the duration and work done are the same.
• Concurrent resistance and endurance exercise dramatically enhances the signaling pathway of mitochondrial biogenesis (over endurance exercise alone).

Trained subjects

• Sprint interval training is a powerful inducer of PGC-1α and other genes regulating mitochondrial biogenesis. Likely needs to be done fasted. (Added bonus: Lepgen mimic, which may have powerful implications for increased energy levels and fat loss.) (Note: Does not actually need to be “sprint”— sprint efforts on a cycle also work.)
• Eight weeks of concurrent strength and endurance training does not enhance mitochondrial content (CS-activity) or performance.
• Exercise with low muscle glycogen enhances the expression of PGC-1α and other genes regulating mitochondrial biogenesis.

General finding

• Both exercise type and glycogen status in the muscle play a role in mitochondrial biogenesis.
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General finding

- Both exercise type and glycogen status in the muscle play a role in mitochondrial biogenesis.
ANY type of exercise will work to increase mitochondrial biogenesis. But combination exercise of both resistance exercise and endurance or HIIT is most effective.

Summing Up: Exercise and Mitochondrial Biogenesis

You will have to do either HIIT or SIT. Experiment with doing HIIT or SIT workouts after occasional intermittent fasts and/or the nightly fast.

Sources: CDC, WebMD, USDA Men’s Journal, Harris Training Systems, ABC News
This is just **ONE** example of a strategy to boost mitochondrial biogenesis.
There are literally DOZENS of other strategies that are scientifically proven to boost mitochondrial biogenesis—and I’ve outlined them all in my program, The Energy Blueprint.

AND ... Many of them are SYNERGISTIC! So you can layer them together to make them WAY MORE POWERFUL!
Examples of Hormesis

- Exercise
- Intermittent fasts
- Cold
- Heat
- Red light
- Hypoxia
- Oxygen bankruptcy
- Dietary phytochemicals (xenohormetins)
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COLD – Essential to Optimal Energy and Health
Hydrotherapy has actually been in use since ancient times as a way to balance the body and mind.

According to Hippocrates, water therapy ‘allays lassitude’ (physical or mental weakness).
How Does Hydrotherapy Work?

• Throughout our millions of years of evolution, primates have endured physiological stressors like temporary cold and heat temperature changes as a part of daily life. Hydrotherapy is designed to take advantage of the natural body reaction to these changes in order to make the body stronger.

• Applying water of different temperatures to our skin can change our physiology and mood. When humans take a cold swim, once over the initial shock of the cold, it is usually very invigorating.

• This is because wet and cold causes our surface vessels to vasoconstrict (tighten up) making blood move from the surface of your body to the core, as a means to conserve heat. Not only does it conserve heat, it also reflexively bathes the brain and vital organs in fresh blood. This movement will bring nutrition, oxygen and also help gently detoxify the area. Warm water will make the vessels vasodilate (relax) which will bring blood up to the surface. This helps blood move back, away from the core, cleaning out the core.
• Medical research has supported the use of hot and cold baths as well.
• Decreases in stress hormones (like cortisol) have been reported with water bathing (Toda et al., 2006). It has also been shown that water bathing may also help the balance of the feel good neurotransmitter serotonin (Maruszczak et al., 2007).
• Footbaths have been shown to induce relaxation by decreasing that stress response, where it has been noted that the sympathetic nervous system (the ‘fight or flight’ part of our nervous system) was able to calm down (Yamamoto et al., 2008). Thomas Jefferson is well known to have used a cold foot bath every morning for 60 years to maintain his good health.
• According to the most recent statistics from the CDC, one out of every twenty Americans suffers from depression.

• A full 27% of these people report that their condition is so bad that it prevents them from performing everyday activities or associating with others. If you’re ever suffered from even mild depression, you know how difficult the experience can be. In a world as beautiful and varied and abundant as ours, any emotional offset that disconnects you from daily experience is a tragedy.
• The main solution to this monumental health issue that’s offered by conventional medicine is prescription antidepressant drugs. *230 million* prescriptions are filled for these drugs every year—a number which *doubles* nearly every ten years—and according to studies, their effectiveness is extremely poor. Unfortunately, this failure is covered by up drug companies, which make billions of dollars per year from the sale of antidepressants.

• But, unbeknownst to most people, there are natural treatment solutions for depression that are natural and *fast-acting*. One of the most promising of all is *cold water exposure*. 
Cold Water Exposure Can Alleviate Depression

- You heard that right—frequent exposure to cold water can alleviate depression in a surprisingly short amount of time.
- More and more people are discovering that cold water therapy can change your life.
- This practice of cold exposure is not without historical precedent; spiritual and medical traditions throughout recorded history have lauded the virtue of cold water bathing (yogis would travel vast distances to find solace in the glacial waters of Himalayan waterfalls).
- Hippocrates believed that hydrotherapy “allays physical and mental weakness,” and the tradition played an important role in 19th century German naturopathy.
Only recently, though, has modern medical science had anything positive to say about it. Researchers from the Virginia Commonwealth University School of Medicine reported that depressed patients experienced a significant mood improvement because of cold water exposure. They simply took a 2-3 minute shower at 68 degrees Fahrenheit, once or twice daily for two months.

Other research has also demonstrated that hydrotherapy is remarkably effective at relieving depression’s symptoms and related conditions. One study found the practice to be more effective at ameliorating anxiety and mood instability than Paxil (a leading pharmaceutical), and another found that cold water exposure works wonders for both depression and chronic fatigue.
Cold water exposure thus helps us return to a natural state of balance by activating the sympathetic nervous system, increasing blood flow to the brain and core, and increasing blood levels of beta-endorphin and noradrenaline. It also helps calm systemic inflammation, which is strongly linked to depression. And by the way, exercise (which could also be viewed as a kind of self-induced physiological stressor) also triggers some of these positive effects—so an exercise routine followed by a cold shower can deliver a powerful one-two punch to depression.

Here’s another fascinating effect of cold showers: because your skin has far more cold receptors than warm receptors, sudden exposure to cold water sends what researchers call “an overwhelming amount of electrical impulses from peripheral nerve endings to the brain.” It is believed that this unwitting brain stimulation can have a potent antidepressant effect—a hypothesis borne out by the effectiveness of electroshock therapy against depression.

The punchline is that cold showers can offer remarkable relief from depression, without any of the side effects, complications, or associated costs of prescription antidepressants, electroshock therapy, and other medical interventions. And they feel absolutely invigorating too!
Another group of researchers from Virginia found that hydrotherapy may be useful to treat cancer and chronic fatigue, as well as be useful in the treatment of depression (Schevchuk, 2008).
Three profound effects of COLD on our physiology when it comes to energy levels...
1. Induction of mitochondrial biogenesis.
2. Upregulation of important mood and energy-boosting neurotransmitters in the brain
3. Upregulation of hormones involved in energy production and increased leptin sensitivity.
Vast Array of Metabolic Benefits From Cold Exposure

- A colder environment increases BAT activity and metabolism
- Even lean subjects increase BAT and burn fat
- Shivering releases irisin, which turns white fat into brown fat
- Irisin correlates to longer telomeres and longevity
- Irisin may explain how cold thermogenesis can build muscle
- Irisin increases insulin sensitivity and nutrient uptake into muscle
- Can irisin help fight certain types of cancer?
- BAT burns glucose and boosts metabolism in humans
Vast Array of Metabolic Benefits From Cold Exposure

- Cold stress turns white fat into “beige” fat
- BAT therapy to combat obesity
- BAT burns fat in the blood stream
- BAT contributes to only some of the metabolic increase of cold stress
- BAT activity in humans inversely correlate to obesity
- Rising environmental temperatures linked to obesity?
Vast Array of Metabolic Benefits From Cold Exposure

- Cold exposure increases adiponectin levels
- Adiponectin burns fat
- Adiponectin increases mitochondria and reduces free radicals in human skeletal muscle
- Adiponectin increases mitochondria in human skeletal muscle
- Adiponectin increases glucose uptake and fat burning in skeletal muscle
- Adiponectin pushes glucose into muscle
- Adiponectin, obesity, insulin resistance, and fat-burning
- Adiponectin resistance in obesity
- Brown Fat sucks up glucose from the blood stream
- Cold exposure converts white fat to “beige fat” in mice
- BAT-disabled mice become obese
Vast Array of Metabolic Benefits From Cold Exposure

- Adiponectin may help fight cancer
- Low adiponectin and heart disease, diabetes, systemic inflammation, and metabolic disorder
- Adiponectin, HDL, and diabetes
- Adiponectin as a treatment for obesity and heart disease
- Adiponectin, fasting, and circadian rhythms
- Adiponectin burns off glucose and increases insulin sensitivity
- Adiponectin is produced from muscle as well as fat, in mice
  Exercise increases adiponectin levels in obese men
- Glucose uptake may help explain CT’s ability to preserve and build muscle
1) Cold Exposure Builds Strong Will Power

- Cold exposure build will power. Especially when done first thing in the morning.
- Doing something you are so resistant to, every single day, right when you wake up, takes a lot of mental strength. And overtime, this mental strength and discipline will become an automated habit that transfer into every area of your life.
2) Cold Exposure Improves Emotional Resilience

- Do you get flustered, anxious or irritable easily?
- Cold showers can help. Seriously, cold showers train your nervous system to be more resilient to stress.
- As shown in one study, cold showers act as a small form of oxidative stress on your nervous system. And overtime, the body adapts to this. Essentially, you will be a calm, cool, badass. The first time you step in that cold shower, you won’t be able to think straight, let alone breath. But after a month, you will be thinking about your day in a Zen like focus as the ice cold water has no effect on you. This will translate into everyday life as you brush off stressful bullshit that would typically ruin your mood.
- Body hardening: Adapting to one stressor can provide far reaching benefits against other stressors. This can be viewed as an adaption to repeated oxidative stress, and is postulated as a mechanism for **body hardening**. Hardening is the exposure to a natural, e.g., thermal stimulus, resulting in an increased tolerance to stress, e.g., diseases. – **Source**
Along with increasing your adaptation to stressful situations, they will build up the antioxidant defense system in your mitochondria – making you less stressed in general.
4) Cold Increases Alertness

Cold can be a little jarring at first, but ultimately it works to increase your oxygen intake & heart rate, resulting in a natural dose of energy throughout the day.
One of the most important benefits of cold showers is the fact that they increase your immunity.

A study from England showed that taking regular cold showers increases the amount of disease-fighting white blood cells, compared to that of those who take regular hot showers. The hypothesis was that the boys attempted to warm itself during the cold shower, resulting in an increase in the metabolic speed rate and activation of the immune system. This then leads to the release of more white blood cells.
Numerous studies have confirmed that cold water immersion significantly speeds physical recovery and rejuvenation from intense exercise.
Numerous studies have confirmed that cold water immersion can impact areas of the brain critical for regulating mood and emotional state.
8) They Wake You Up and energize your body

Obviously, an ice cold shower is going to get you up in the morning. We already talked about the science showing how they will increase your alertness, but beyond the science, thousands of people will tell you that this is simply the best way of getting up and getting energized for the day.
Daily morning exposure to cold, ideally first thing after waking up. (You can do a cold bath or shower or use an ice vest or do cold exposure outdoors if that is possible where you live).

Start slow! Ease into it with a warm shower prior to cold one, if necessary for you at first.

Take advantage of cold outdoor temps rather than avoiding them.

Don’t always protect your body with clothes and heaters in your home and car. Let your body get COLD every so often—at least for a short time.

If cold is unpleasant or uncomfortable, CHANGE YOUR ATTITUDE! Focus on the benefits rather than the pain, as with exercise.
Start the shower at a comfortable warm temperature and slowly cool the water over a five-minute period down to 68 degrees Fahrenheit (mildly uncomfortable), and stay at that temperature for two to three minutes. You can use a thermometer to check the temperature as you go. This can be performed once or twice a day for a couple weeks.

- Each week, progressively go a little colder and colder.
- When first starting out, use a 3-5 minute pre-adaptation warm shower and slowly turn it colder and colder to get to the desired temp.
- Note: extreme cold may actually worsen mood. No need to go extreme with the temps! Don’t put yourself in pain or shock, but you should be uncomfortable.
It's all about the ATTITUDE you have towards the cold

• It's all about the attitude you take into this. If you're thinking "ah man...this sucks... it's so uncomfortable... I hate this" the whole time, you're promoting a stress reaction in your body.

• You want to EMBRACE it! Think about all the positive physiological effects its having as you're doing it and SMILE! Enjoy the invigorating effects of it. Then the invigorating, energizing, and mood lifting effects will naturally get you hooked on it!
Ready to Get Cold?

• It’s really not so bad. In fact, nearly everyone that adopts cold showers or cold plunges as a daily practice learns to love it much more quickly than you’d expect.
• If you’re still apprehensive, here’s some good news: there are even studies that demonstrate that just 30 seconds per day of cold water exposure can have a significant effect on your emotional state on overall well-being.
• All studies on the subject showed that 68 degrees Fahrenheit is cold enough to confer great benefit, and the study with the most structured protocol suggested a 5-minute pre-adaptation period—meaning that participants gradually turned the water from hot to 68 degrees over the course of 5 minutes. A lot of people prefer the “all-at-once” method because there seems to be some energy boosting magic in sudden immersion in cold water.
• It’s intimidating now, but give this practice a try for at least a few weeks. As you notice the mood and energy lifting benefits, you might just get hooked sooner than you expect.
HORMESIS: Major Key to Enhanced Health, Longevity, and ENERGY

One of the most important—if not the most important—strategy for health and energy enhancement.

That which does not kill us makes us stronger

-Friedrich Nietzsche
Here’s the KEY POINT:

The more your body has been exposed to hormetic stressors and had the chance to adapt to them, the more resilient your body becomes.

...which means the more optimal your metabolic health is, which means the more cellular energy your cells produce and **the more energy you feel**.
Ample exposure to hormetic stressors → Increased metabolic health → Increased capacity of cells to produce energy → Optimal energy levels

Inadequate exposure to hormetic stressors → Decreased metabolic health → Hindered capacity of cells to produce energy → Fatigue
The Fragile-Bulletproof Spectrum

Avoidance of all stressors

Regular systematic exposure to a wide variety of hormetic stressors
Hormetic Stressors Build The Cellular Engine

Hormesis may be the single most important strategy to increase your metabolic health and boost energy levels.
IMPORTANT POINT...

Remember, hormesis needs to be BALANCED with efficient cellular regeneration (factor #1)!
The magic key to high energy levels in the pulsation and cycling between these states.

Cellular Regeneration

Building the Cellular Engine
The magic key to high energy levels in the pulsation and cycling between these states.

What creates fatigue is the loss of one or both of these two states.
The magic key to high energy levels in the pulsation and cycling between these states.

What creates fatigue is the loss of one or both of these two states.
Key Point: The hidden key to higher energy is building the cellular engine through hormesis.
Minimal exposure to hormetic stressors

- Increased energy levels
- Increased fitness
- Resistance to disease
- Increased longevity

Poor energy levels
- Low fitness
- Increased susceptibility to disease
- Decreased longevity
Minimal exposure to hormetic stressors

- Poor energy levels
  - Low fitness
- Increased susceptibility to disease
- Decreased longevity

AMPLE exposure to hormetic stressors

- Increased energy levels
  - Increased fitness
- Resistance to disease
- Increased longevity
More Mitochondria = Bigger Cell Engine!

With well designed strategies, you can go from 500 mitochondria in your cells to 750 or 1,000 or more!

When you increase the amount of mitochondria in your cells and the SIZE and POWER of those mitochondria, you can DOUBLE the energy producing capacity of your cells!
Stimulating Mitochondrial Growth/Creation is the KEY to Energy

Bigger mitochondria and MORE mitochondria → Bigger Cellular Engine → Higher capacity to PRODUCE ENERGY!
Summary – Take-home points:
The magic key to high energy levels in the pulsation and cycling between these states.
MOST PEOPLE ARE DEFICIENT IN BOTH OF THESE TWO KEY FACTORS!

Cellular Regeneration

Building the Cellular Engine
So the goal is to add more of BOTH into your life!

Cellular Regeneration

Building the Cellular Engine
First, you start with the FOUNDATION, which is...

Cellular Regeneration

Building the Cellular Engine
The Foundational Cell Regeneration Strategies

1. Adequate calories, macros, and vitamins/minerals
2. Circadian rhythm habits
3. Sleep hygiene habits
4. Gentle movement
5. Anti-stress habits
6. Work-rejuvenation rhythm
7. Optimized autophagy
Then you start building your cellular engine up so it produces more energy.
Minimal exposure to hormetic stressors

- Poor energy levels
  - Low fitness
- Increased susceptibility to disease
- Decreased longevity

AMPLE exposure to hormetic stressors

- Increased energy levels
- Increased fitness
- Resistance to disease
- Increased longevity
Examples of Hormesis

1. Exercise (all subtypes)
2. Intermittent fasting
3. Intermittent nutrient cycling
4. Cold
5. Heat
6. Red and near-infrared light
7. Hypoxia
8. Oxygen bankruptcy
9. UV light
10. Xenobiotics (caffeine, nicotine, alcohol, many drugs)
11. Dietary phytochemicals (xenohormetins)
ANY type of exercise will work to increase mitochondrial biogenesis. But combination exercise of both resistance exercise and endurance or HIIT is most effective.

Summing Up: Exercise and Mitochondrial Biogenesis

SEDENTARY PERSON | REGULAR EXERCISER

<table>
<thead>
<tr>
<th>SLEEP QUALITY</th>
<th>56% say they get fairly or very good sleep</th>
<th>83% say they get fairly or very good sleep</th>
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<tbody>
<tr>
<td>AVERAGE RESTING HEART RATE</td>
<td>60–80 beats per minute</td>
<td>40–60 beats per minute</td>
</tr>
<tr>
<td>MAXIMAL OXYGEN UPTAKE*</td>
<td>Women: &lt;25</td>
<td>Women: 46–50</td>
</tr>
<tr>
<td></td>
<td>Men: &lt;30</td>
<td>Men: 48–53</td>
</tr>
<tr>
<td>AVERAGE DAILY CALORIE NEEDS</td>
<td>Women: 1,600–2,000</td>
<td>Women: 2,000–2,400</td>
</tr>
<tr>
<td></td>
<td>Men: 2,000–2,600</td>
<td>Men: 2,400–3,000</td>
</tr>
<tr>
<td>LIFE EXPECTANCY</td>
<td>The average American lifespan is 78.7 years</td>
<td>About 4 years longer</td>
</tr>
<tr>
<td>SWEAT</td>
<td>Sweat less efficiently</td>
<td>Start sweating sooner</td>
</tr>
</tbody>
</table>

You will have to do either HIIT or SIT. Experiment with doing HIIT or SIT workouts after occasional intermittent fasts and/or the nightly fast.

BoEom line: Are you currently sedentary and untrained?

BoEom line: Are you currently a workout warrior who exercise close to everyday (and you’re already in good metabolic health)?

BoEom line: Are you currently sedentary and untrained??
YOUR HOMEWORK: Here’s what I want you to do...

1. Choose just TWO of the foundation CELL REGENERATION strategies to work on
   – e.g. sleep and autophagy, or nutrition and circadian rhythm

2. Then get to work on the TWO forms of hormesis to integrate into your life.
   – I recommend following the exercise protocols I outlined and cold hormesis.
For more information about my programs, including The Energy Blueprint

Email me: Ari@ariwhitten.com