



PERFORMANCE INSIGHTS

Brain Energy

A Revolutionary Breakthrough in Understanding Mental Health—and
Improving Treatment for Anxiety, Depression, OCD, PTSD, and More

BY CHRISTOPHER N. PALMER, MD • BENBELLA BOOKS © 2022 • 320 PAGES
Curated for Invictus Athletes & Families

THE BIG IDEAS

What We're Doing...

Isn't working.

Mental Disorders =

Metabolic disorders of the brain.

What Is Metabolism?

A single-sentence definition.

Sleep, Light, and...

Circadian rhythms.

Food, Fasting, and...

Your gut.

Purpose in Life

How's yours?

"When I finally put the pieces together, I realized that I had stumbled upon something beyond my wildest dreams. I had developed a unifying theory for the cause of all mental illnesses. I call it the theory of brain energy." — Christopher M. Palmer, MD

THE FOUNDATION: WHY THIS BOOK MATTERS

"When I finally put the pieces together, I realized that I had stumbled upon something beyond my wildest dreams. I had developed a unifying theory for the cause of all mental illnesses. I call it the theory of brain energy. ... To be clear, I am not the first to suggest that metabolism and mitochondria are related to mental illness. In fact, I am building on decades of research. Without these other researchers and their pioneering work, this book wouldn't exist. I'll share many of their groundbreaking studies in the pages to come. However, for the first time, this book puts the pieces of the puzzle together to reveal one coherent theory. This theory integrates existing biological, psychological, and social research, and offers one unifying framework for explaining and treating mental illness. Brain Energy not only provides long-elusive answers, it offers new solutions. I hope it will end the suffering and change the lives of millions of people throughout the world. If you or someone you love is affected by a mental illness, it might just change your life, too."

~ Christopher M. Palmer, MD from *Brain Energy*

This is a VERY important book. As some of the authors on the back cover put it (including Robert Lustig, author of *Fat Chance*; Mark Hyman, author of *Eat Fat, Get Thin* and *The Food Revolution*; and David Perlmutter, author of *Grain Brain*, *Brain Maker*, and *Brain Wash*), I think this book has the potential to revolutionize the way we approach mental health care.

For years at Invictus, we have talked about the importance of getting our ENERGY optimized so we can show up powerfully in our Work and in our Love. In our training, we've also discussed the fact that our PHYSIOLOGY drives a *LOT* more of our PSYCHOLOGY than most of us think. This book provides the underlying theoretical framework that ties all that wisdom together.

Christopher M. Palmer, MD, is a Harvard psychiatrist and researcher working at the interface between metabolism and health. He's an assistant professor of psychiatry at Harvard Medical School and has held leadership roles at Harvard, McClean Hospital and nationally.

In this thoughtful, scientifically-grounded book (which is written more as a research-dense foundation for a new movement in mental health care rather than a breezy self-help book), Palmer shares his "theory of brain energy" that, in short, establishes the fact that **"mental disorders are metabolic disorders of the brain."**

That, my Invictus family, is a VERY (!!!) Big Idea.

"The theory of brain energy is based on one overarching concept—mental disorders are metabolic disorders of the brain."

~ Christopher M. Palmer

WHAT WE'RE DOING ISN'T WORKING

Before we jump in and discuss why this theoretical framework matters AND discuss some practical ideas on how we can apply the wisdom to our lives TODAY, I want to say that I got tears in my eyes when I read the inside flap then Christopher's dedication.

The inside flap says: *"In Brain Energy, Harvard psychiatrist Dr. Christopher M. Palmer unites our existing knowledge about mental illness within a single framework: Mental disorders are metabolic disorders of the brain. Palmer explains this new understanding of mental illness in detail, from symptoms and risk factors to what is happening in brain cells, and sheds light on new treatment pathways for all mental disorders, including anxiety, depression, ADHD, alcoholism, eating disorders, bipolar disorder, autism, and even schizophrenia."*

I circled "ALCOHOLISM" and thought of my dad (and his dad and my brother) when I read that. Then I turned the page and read Christopher's dedication: *"To my mother... My futile attempts to save you from the ravages of mental illness lit a fire in me that burns to this day. I'm sorry I didn't figure this out in time to help you. May you rest in peace."*

I got tears in my eyes and goosebumps (again) as I typed that. Amen. I feel the same way about my father and I feel an intense fire to help YOU and your families deal with the extraordinary challenges we all face and the unprecedented mental turmoil we are all experiencing in the process. With that and with love as our fuel, let's get to work.

*"When a flower doesn't bloom, you fix the environment in which it grows, not the flower."
~ Alexander den Heijer*

"Given everything I've outlined in this chapter—that these disorders are common and becoming more common, that they are an enormous burden on society both in terms of economic impact and human suffering, and that our treatments have proved unequal to the risk of relieving that burden—it seems clear that mental illness is a global health emergency. We have poured money into research in the hope of shedding light on the problem and uncovering new solutions. In 2019, the National Institutes of Health (NIH) spent \$3.2 billion on mental health research. What do we have to show for the research that has been done?

This is what Dr. Tom Insel, the former director of the National Institute of Mental Health (NIMH), had to say in 2017 after leaving the NIMH: *I spent thirteen years at NIMH really pushing on the neuroscience and genetics of mental disorders, and when I look back at that I realize that while I think I succeeded at getting lots of really cool papers published by cool scientists at fairly large costs—I think \$20 billion—I don't think we moved the needle in reducing suicide, reducing hospitalization, improving recovery for the tens of millions of people who have mental illness.*

This was brave of Insel to acknowledge. Those in the mental health field know it to be true. So, again, what are we missing? The fact is, in order to make real progress, we have to be able to answer the question: 'What causes mental illness?' And up until now, we have failed."

That's from the first chapter called "What We're Doing Isn't Working: Mental Health Today" in which Dr. Palmer shares staggering stats on just how prevalent mental illness is in our world.

He tells us that depression is the leading cause of disability in the world today.

And: *“Mental disorders are costly to society. The financial toll worldwide was \$2.5 trillion in 2010 and is expected to reach \$6 trillion by 2030.”*

According to estimates from the World Health Organization, in 2017 almost 800 million (!) people suffered from mental health disorders—over 10% of the global population.

Although ALL the statistics are even worse in the United States (with more people experiencing anxiety and burnout to depression and addiction), it's especially (and excruciatingly) painful to see the rise in mental illness (and suicide) among the younger generations.

The main point of the chapter is simple. If we want to SOLVE the epidemic levels of mental illness, we need to know the CAUSE of all these issues.

Of course, providing us with a scientifically robust theory is what the book is all about which leads us to the next Idea...

MENTAL DISORDERS = METABOLIC DISORDERS OF THE BRAIN

“When mitochondria don't function properly, neither does the brain. When brain metabolism is not properly controlled, the brain doesn't work properly. Symptoms can be highly variable, but mitochondrial dysfunction is both necessary and sufficient to explain all the symptoms of mental illness.”

~ Christopher M. Palmer

“Already, this may seem impossible to reconcile. You might be yelling, ‘But these are different diseases!’ Schizophrenia is not the same thing as an eating disorder or a mild anxiety disorder. Cardiovascular disease, bipolar disorder, epilepsy, diabetes, and depression are all different. They have different symptoms. They affect different parts of the body. They appear at different ages. Some of them like a stroke, can kill people quickly. Others, like mild depression that lasts only a few months, might come and go away without any intervention.

It's difficult to imagine that all these disorders share one common pathway. If there is such a common pathway, it will have to be involved in many different aspects of how the body works. It will need to tie together everything that we already know about these different disorders—their risk factors and symptoms, the treatments that work. That's a huge role for any bodily process or function to fill. As you will see in Part Two, metabolism fills this role. Yes: we have arrived at our common thread, the underpinning factor that lets us answer our tangled questions about causes and treatments, symptoms and overlaps. Mental disorders—all of them—are metabolic disorders of the brain.”

Here's the thesis of the book and the theory that truly has the potential to revolutionize the way we treat ALL mental illnesses...

“Mental disorders—all of them—are metabolic disorders of the brain.”

Let me repeat that. This time in BOLDDED ALL CAPS...

“MENTAL DISORDERS—ALL OF THEM—ARE METABOLIC DISORDERS OF THE BRAIN.”

One more time. This time in larger font just to make sure it sinks in...

“MENTAL DISORDERS—ALL OF THEM—ARE METABOLIC DISORDERS OF THE BRAIN.”

If we all (and by all I mean every mom, dad, aunt, uncle, grandma, grandpa, doctor, therapist, school teacher/principal, social worker, parole officer, HR executive, military officer, government official, coach, etc!) *truly* got this, we could change the world. LITERALLY.

Know this: By focusing on optimizing our METABOLIC systems (with an emphasis on the health of our mitochondria which are the engines of our Energy), we'd take *huge* strides in solving not just our *mental* illness challenges like anxiety and depression and alcoholism but ALSO our *physical* illness challenges like obesity, diabetes and cardiovascular disease which Dr. Palmer painstakingly points out are ALSO driven by metabolic dysfunction.

As I read the book, I was struck by the parallel wisdom I learned while trying to help my brother navigate his late-stage pancreatic cancer—most specifically, Nasha Winters's wisdom from *The Metabolic Approach to Cancer*. I was also struck by the parallel wisdom in Dale Bredeson's *The End of Alzheimer's*. (Check out both of those Notes for more.)

WHAT IS METABOLISM?

The fact that illness is primarily a metabolic issue is, ultimately, an INCREDIBLY powerful perspective because we can do a LOT more to deal with our mental and physical health challenges than we may otherwise think. We'll talk about a few practical things we can do to optimize our metabolism in a moment. Before we go there...

"So what affects metabolism? ... many things! Diet, light, sleep, exercise, drugs and alcohol, genes, hormones, stress, neurotransmitters, and inflammation, to name a few."

~ Christopher M. Palmer

"A one-sentence definition [of metabolism] might be the following: *Metabolism is the process of turning food into energy or building blocks for growing and maintaining cells, as well as the appropriate and efficient management of waste products.* Metabolism is how our cells work. Our metabolism determines our cellular health, how our bodies and brains develop and function, and how we allocate resources to different cells at different times to optimize our survival. Metabolism allows some cells to grow and thrive and lets others shrivel up and die in a complex cost-benefit analysis that prioritizes healthy and advantageous cells over those that might be old, weak, or simply more expendable. As the body's resource management system, metabolism is all about adaptation. Our environment is constantly changing, and so are our circumstances in the environment. As a result, our metabolism is constantly changing to keep up with the shifts around us. These adaptations in metabolism allow us to thrive in optimal environments or to simply survive in situations that are stressful to the body, like food scarcity. But the availability of food isn't the only change metabolism responds to—numerous other factors play a role, like psychological stress, light exposure, temperature, how much sleep we get, hormone levels, and the amount of oxygen available to cells. At the end of the day, metabolism is the body's battle to stay alive. Many biological authorities would say that metabolism defines life itself."

In Part I of the book, Dr. Palmer focuses on "Connecting the Dots" as he established the fact that what we're doing isn't working, looks at the causes of mental illnesses, searches for a common pathway and asks the question: "Could It All Be Related?"

In Part II, he answers that question with a definitive YES as he lays out his "Brain Energy" theory, establishing the idea that "Mental Disorders Are Metabolic Disorders" while introducing us to how our metabolism works and the little organelles known as mitochondria that are the engines of our metabolism.

Know this: *"The drivers of human cells, and human metabolism, are called mitochondria. And they are the common pathway to mental and metabolic disorders."*

With the theoretical framework established, Palmer moves on to Part III on "Causes and Solutions" in which he identifies NINE "contributing causes" and their solutions including: Genetics and Epigenetics; Chemical Imbalances, Neurotransmitters, and Medications; Hormones and Metabolic Regulators; Inflammation; Sleep, Light, and Circadian Rhythms; Food, Fasting, and Your Gut; Drugs and Alcohol; Physical Activity; and Love, Adversity, and Purpose in Life. Let's explore THREE powerful solutions now.

P.S. Know this: *"As we embrace the idea that mental disorders are no longer syndromes but metabolic disorders of the brain, new solutions become obvious. We need to restore brain energy by normalizing metabolism and the function of mitochondria. Once we do this, the symptoms of mental illness will begin to resolve."*

SLEEP, LIGHT, AND CIRCADIAN RHYTHMS

"Are you getting seven to nine hours of sleep every night?"

~ Christopher M. Palmer

"Sleep problems can be defined as too much, too little, or poor-quality sleep. Any of them can take a metabolic toll. Problems sleeping can exacerbate all mental and metabolic disorders. Sleep deprivation can worsen depression, mania, anxiety, dementia, ADHD, schizophrenia, and substance abuse disorders. It can also exacerbate metabolic disorders. People with diabetes can see their blood sugar rise. People with obesity can gain more weight. People who have already had a heart attack can have another one. These are all examples of sleep problems worsening existing disorders. However, they can also be contributing causes to the onset of such disorders. There have been many studies of normal, healthy people being sleep deprived. If the sleep deprivation is extreme, it can result in depression, anxiety, cognitive impairment, mania, and psychosis."

As you know if you've been following along, I'm a big fan of sleep. (Hah.) I'm also a big fan of Matthew Walker and his brilliant book *Why We Sleep*.

For now: *"A balanced diet and exercise are of vital importance, yes. But we now see sleep as the preeminent force in this health trinity. The physical and mental impairments caused by one night of bad sleep dwarf those caused by an equivalent absence of food or exercise. It is difficult to imagine any other state—natural or medically manipulated—that affords a more powerful redressing of physical and mental health at every level of analysis."*

Based on a rich, new scientific understanding of sleep, we no longer have to ask what sleep is good for. Instead, we are now forced to wonder whether there are any biological functions that do not benefit by a good night's sleep. So far, the results of thousands of studies insist that no, there aren't."

Emerging from this research renaissance is an unequivocal message: sleep is the single most effective thing we can do to reset our brain and body health each day—Mother Nature's best effort yet at contra-death. Unfortunately, the real evidence that makes clear all the dangers that befall individuals and societies when sleep becomes short have not been clearly telegraphed to the public. It is the most glaring omission in the contemporary health conversation."

Sleep. It does a Hero good.

What's ONE thing you can do to optimize YOUR sleep TONIGHT?

FOOD, FASTING, AND YOUR GUT

"Sleep, light, and circadian rhythms are all interconnected. They play a powerful role in metabolism, mitochondrial function, metabolic disorders, and mental disorders."

~ Christopher M. Palmer

"What we eat, when we eat, and how much we eat have direct effects on metabolism and mitochondria. Everyone knows that diet plays a role in obesity, diabetes, and cardiovascular disease. What most people might not know is that diet also has profound effects on mental health and the brain."

This field is massive. Tens of thousands of research articles and countless textbooks have explored the effects of diet on metabolism and mitochondria. Most of this research has focused on obesity, diabetes, cardiovascular disease, Alzheimer's disease, aging, and longevity. Although these researchers don't usually see the connection with mental health, by now, I hope *you* do.

The connections go far beyond correlations. They overlap at the level of neural circuits in the brain and, of course, the entire network of metabolism and mitochondria within the human body."

That's from a chapter called "Food, Fasting, and Your Gut."

Short story: Food, as we know, plays a HUGE role in optimizing our physical AND mental health. So does NOT eating—aka intermittent fasting. And, as we've discussed, your GUT has 90% (!) of your serotonin so...

Check out our Notes on *The Happiness Diet* and this +1 on *The Optimize Food Rules* for more For now... What's ONE thing you can do to optimize YOUR nutrition TODAY?

P.S. Each of the practical chapters features a success story. The one from this chapter is all about Mildred—a woman who suffered from DEBILITATING mental illnesses from the age of 17 to 70.

"Fasting also results in autophagy. There are several versions of IF [intermittent fasting]. Some restrict eating to eight to twelve hours per day. Others allow one meal a day. And others restrict nighttime eating. We have evidence that IF improves mood and cognition, and protects neurons from damage in animal models of epilepsy and Alzheimer's disease. One group of researchers set out to understand how and why. You'll never guess what they found—it's mitochondria!"

~ Christopher M. Palmer

Then her doctor encouraged her to go to a weight-loss clinic at Duke where they were using a ketogenic diet. Within two weeks she noticed significant improvement and... After 53 (!!!) years of struggle, she has been thriving for the last 13 years.

As Palmer says: "Stories like Mildred's . . . just don't happen in psychiatry. Even with the best treatments we have to offer, this is unheard of. Mildred's story and the theory of brain energy say it is possible. It is a new day in the mental health field, one filled with hope for more stories like Mildred's."

PURPOSE IN LIFE

“As we embrace the idea that mental disorders are no longer syndromes but metabolic disorders of the brain, new solutions become obvious. We need to restore brain energy by normalizing metabolism and the function of mitochondria. Once we do this, the symptoms of mental illness will begin to resolve.”

~ Christopher M. Palmer

“Humans are driven to have a sense of purpose. I believe this is hardwired into our brains, given that this single construct has been highly associated with both metabolic and mental health. When people lack a sense of purpose, it appears to induce a chronic stress response and can lead to many poor health outcomes. Purpose in life is multifaceted, however. It usually includes many things, not just one. The stress inventory I just mentioned highlights three possibilities: relationships, taking care of yourself and staying healthy, and having a job.”

That’s from the final practical chapter all about “Love, Adversity, and Purpose in Life.”

Pop quiz: Did you notice the Big 3 of Purpose? Yep. There they are: **Energy** (“taking care of yourself and staying healthy”), **Work** (“having a job”) and **Love** (“relationships”).

Dr. Palmer talks about the research that shows just how important it is to have a clear sense of purpose in life and how that purpose fuels our metabolism at the mitochondrial level.

One of the researchers he references in this section is Lisa Miller. We recently featured her great book called *The Awakened Brain* which is all about “The New Science of Spirituality and Our Quest for an Inspired Life.”

He also tells us: *“It’s important to point out a general rule of thumb for human health—people need to develop and maintain full lives, ones that include what I call the four Rs: close relationships, meaningful roles in which they contribute to society in some way, adherence to responsibilities and obligations (not just to the people in one’s life, but to society as a whole, such as not breaking laws), and having adequate resources (money, food, shelter, etc.).”*

He goes on to say that we need to continue to the work at both the INDIVIDUAL and SOCIETAL levels to help create a world in which everyone has access to those fundamental things.

With all this wisdom in mind, I say... Here’s to playing our roles as humbly yet Heroically well as we can to help create a world in which 51% of humanity is flourishing by 2051.

Day 1. All in. LET’S GO, HERO!

Brian Johnson,

Heroic Philosopher CEO — Adapted for Invictus

ABOUT THIS INVICTUS INSIGHT

At **Invictus Sports Performance & Fitness**, we believe mental energy IS performance energy. The Brain Energy framework aligns directly with our pillars: Sleep, Nutrition, Movement, and Purpose. By optimizing your mitochondria, you optimize your brain—and your performance on and off the field. This Insight is curated from Christopher Palmer's groundbreaking work to help our athletes, families, and community build more resilient minds and bodies.

If you liked this Insight, you'll probably like... **The Awakened Brain, The Happiness Diet, The Metabolic Approach to Cancer, The End of Alzheimer's**



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