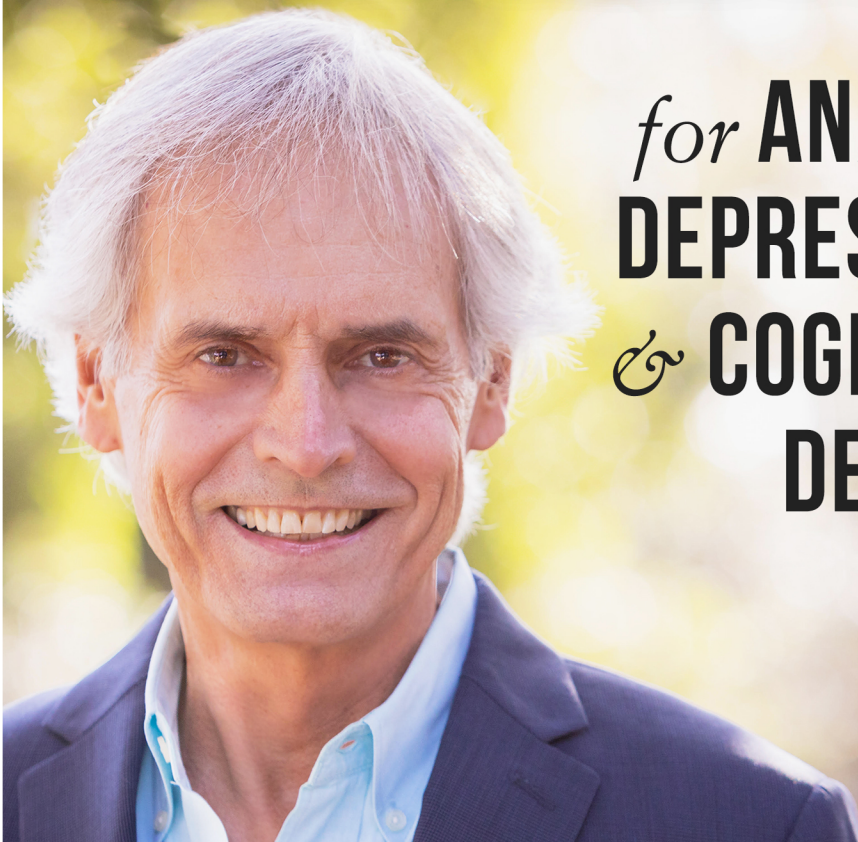


AUTHOR OF #1 BESTSELLING *THE NEUROGENESIS DIET AND LIFESTYLE*

HOLISTIC HEALING



for **ANXIETY,
DEPRESSION,
& COGNITIVE
DECLINE**

Brant Cortright, Ph.D.

Chapter 1

1.1 - The Problem

Why Have Mental Health Disorders Skyrocketed in the Past 50 Years?

If you feel bad, you're not alone.
Mental health problems have exploded over the last five decades.

Childhood rates of depression and anxiety are five to eight times greater than they were in the 1950s and '60s. This isn't due to better diagnosis—the same standardized tests were used then. Plus, now we have sky-high rates of autism, attention deficit disorder (ADD), attention deficit hyperactive disorder (ADHD), eating disorders, and other psychological problems virtually unknown back then. ^{1, 2}

For adults it's a similar picture. One in eight American adults is currently taking an antidepressant, and one-fourth of those have been taking one for ten years or more. One in four American women age 25–45 is taking an antidepressant. In 2011, the Centers for Disease Control and Prevention reported that the rate of antidepressant use in the United States rose by 400% between 1988 and 2008. Before antidepressants it was estimated that the number of depressed people was 50-100 per million. Now it is estimated to be a *thousand times* greater.³

Since each chapter in this book could be a book in itself (and each sentence given a reference), I'll do my best to compress a lot of information into a readable space. Not an easy task considering the volume of information available. In 2016 the American College Health Association surveyed 100,000 college students at 53 U.S.

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campuses and found that 84% of the students felt unable to cope, 79% were exhausted, 60% felt very sad, and more 50% were experiencing overwhelming anxiety.⁴ College counseling centers are swamped with students seeking relief from anxiety and depression.

Rates of Alzheimer's disease show a similar spike. About 50% of people who reach the age of 85 suffer from Alzheimer's or some other form of dementia. In the past 50 years

Alzheimer's rates have gone up more than tenfold, according to the *New York Times*. One in ten seniors 65 or older has Alzheimer's and one in three seniors dies with Alzheimer's or some other dementia. ⁵ Cognitive decline and mild cognitive impairment, the precursor to Alzheimer's, are seen as part of "normal" aging. But why are rates suddenly rising so quickly?

And it's not just happening with common mental health disorders like anxiety and depression, this explosion is also documented in severe mental disorders such as psychosis and schizophrenia. In his revealing book *Anatomy of an Epidemic*, author Robert Whitaker details the growing mental health crisis in America and the entire developed world. The number of disabled mentally ill has tripled in the last three decades. ⁶

Even more alarming: This is all getting worse. According to data from the National Institute of Mental Health, 38% of girls and 26% of boys age 13–17 have an anxiety disorder. I've talked with preschool teachers in despair because a third of their class is on medication. This isn't even grammar school, this is *preschool*.

This crisis has serious physical consequences as well. Research reported in the *New York Times* states, "Americans with depression, bipolar disorder or other serious mental illnesses die 15 to 30 years younger than those without mental illness—a disparity larger than for race, ethnicity, geography or socioeconomic status." ⁷

Depression, anxiety, stress, PTSD, ADD and ADHD, addictions, cognitive decline, and other mental health problems are escalating at rates never before seen. More dramatic statistics like these could go on for pages, but probably it's already clear that something is terribly, terribly wrong.

Paradoxically, this is happening when there are more mental services available than ever before. There are more therapists

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and counselors, more mental health centers, counseling centers, residential treatment centers; more psychiatric medication is being prescribed than at any previous time.

So how can things be getting worse? Why are there more resources available yet a greater need for help? Why are emotional and mental suffering skyrocketing at this time?

1.2 - How Did We Get Here?

Why this is happening is considered a mystery. It can't be genetic because the genome takes 50,000–70,000 years to change. Therefore, it must be something in the environment, even if epigenetic changes ensue. But what?

Many causes have been proposed. Some psychiatrists attribute the rise to better diagnosis while others blame drug companies that promote medicating away any kind of emotional pain. Holistic health practitioners see things like environmental pollution, food additives, and sugar as culprits. Some people blame video games, cell phones, or social media. Many therapists point the finger either to more absentee parenting or else to parents who indulge their kids and produce entitled young adults who can't handle failure. Yet none of these alone can explain the enormity of the problem.

All the possible causes have one thing in common: *They all affect the brain.* Moreover, they all degrade the brain in ways that impair healthy emotion regulation.

1.3 - Why the Brain Is Key

Everyone knows the brain is important, but it's easy to overlook how the brain is responsible for the way you experience life. Everything you experience, you experience through the brain. Every part of you, your body, your emotions and desires, your mental thoughts and images, your dreams and spiritual experiences, your very sense of self, and all of your consciousness is experienced through your brain.

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The brain is the master integrator of all the levels we exist on— body, heart, mind, and spirit. The brain shapes everything in life. **The quality of your brain determines the quality of your life.** With a high-quality brain you experience a high quality of life. A low-quality brain yields a low quality of life. A mediocre brain equals a mediocre life.

The health and strength of the self and the brain go together.

When the brain weakens, the self -weakens. As the brain gets stronger, so does the self. The converse is also true: When the self- weakens, the brain weakens. As the self gets stronger, this strengthens the brain.

The physical brain and the psychological sense of self are two levels of one unitary process, two sides of a single coin. Neuroscience and medicine describe the brain; psychology describes the self. Integrating these two languages into a unified whole gives us the most encompassing vision for healing.

Chapter 2

2.1 - Optimal Brain Performance

Optimal brain function means the immense powers and capacities of your brain are available to engage with the world.

A robust, radiant brain shows itself in every area of life. **When your brain functions at peak capacity, life is a joyous adventure.** Not every moment, of course, but with radiant brain health, even life's inevitable suffering can be tolerated without collapse. You meet the world fully, on all planes.

- Physically you have energy, vitality, and an underlying feeling of well-being.
- Your emotion regulation is healthy, so you feel good, enthusiastic, and eager to connect with others and take part in life, able to bounce back after setbacks, energized and joyful.
- Mentally you are focused, able to concentrate and learn, interested and curious about the world.
- Spiritually you are better able to tune in to your inner being, the source of inner peace and love.

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You aren't afraid of life or defeated by it. With a robust, radiant brain there comes an expansive sense of self. You don't shrink from life, instead you are ready to pounce on it, like an eager four-year-old, ready to play.

The brain meets the stresses and challenges of living by bringing forth its potentials—your inner talents and abilities. When you actualize your inner self, you creatively develop your capacities in relationships, in school, at work, and at play. Such a robust brain doesn't mean being Einstein or having a high I.Q., it means tapping into the unique genius of *your* brain. Bringing forth *your* potentials carries with it an intrinsic sense of meaning and fulfillment.

It's like paddling downstream on a warm day with the wind to your back. Even a little effort produces big results. But your brain can't reach its highest potentials without the self-fulfilling its potentials. The two need to go together.

Actualizing your true nature feels "right" and deeply good, even when things are unpleasant, for you're on the right track to fulfil your deeper self. When bad things happen, as they inescapably do, you aren't as thrown by them and have the resilience to come back quickly.

A robust, radiant brain confers almost total immunity from mental health disorders. Optimal brain health implies that the lower physical systems of the body, like the heart and liver, are healthy also, for if they aren't this usually reduces the brain's operating capacity. Optimal brain health generally means overall radiant health. Radiant health isn't merely the absence of disease, it's a vital state of well-being. There is a healthy glow that feels deeply good and strengthens us to bear the bad times and life's inevitable pain.

2.2 - A Deficient, Impaired Brain

In contrast, an impaired brain, as in Alzheimer's, Parkinson's, a brain injury or some other form of neurological damage, brings both cognitive and emotional problems. An impaired brain means problems with emotion regulation in some form: interpersonal difficulties, depression, anxiety, stress, chronic anger, shame, hopelessness, or other dysphoric states. It brings cognitive problems

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such as difficulties with new learning, brain fog, concentration, memory, or executive function.

A low-functioning brain also usually indicates problems in other areas of life, for example physical problems such as compromised immunity, GI disorders, or heart disease; cognitive problems such as difficulties with concentration, memory, or executive function; spiritual difficulties in focusing, meditation, and inner awareness.

Additionally, problems with emotion regulation further diminish the brain. There is measurable cortical decrease with depression, chronic stress and anxiety, isolation, and PTSD. These emotional states actually shrink the brain.^{8,9} The longer a person is depressed, the greater the cortical loss.

When your brain is operating at below capacity, your whole life suffers.

Each day is like paddling upstream against the wind in a storm: Much effort produces very little result, and at times you are even pulled backward. The very quality of your sense of self is constructed by your brain.

The Average Brain Today: A Weakened, Fragile Organ

The great majority of people fall midway between these two ends of the spectrum. Only a few percent experience a robust, radiant brain and sense of self. A greater number, perhaps 15–20% of the population, suffer from a deficient or impaired brain due to such things as brain damage or injury, neurological conditions like Alzheimer's disease or Parkinson's, drug or alcohol addiction, or cognitive decline.

For most people who consider themselves healthy, however, "health" is simply the absence of disease, and the average brain today reflects this viewpoint. This so-called health is actually a weakened, fragile condition. It masks a fragility in the stability of the brain and the structures of the self that easily fragment into feeling bad at the slightest pressure. Feelings of inadequacy, shame, anxiety, stress, embarrassment, guilt, and a host of other feelings rush in in a furious attempt to paddle upstream and feel okay once again. The result is anxiety, depression, cognitive decline and an impaired immune system.

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Weakened Brain Syndrome

Fragility is a sign the brain isn't operating at an optimal level. This weakness comes from physical and psychological assaults. No one is to blame, for everyone is doing the best they can. The world has innocently stumbled into this state of affairs.

A weakened brain equals a weakened sense of self. With a weakened brain comes a fragile sense of self. Most people don't suffer from low self-esteem, they suffer from fragile self-esteem and the brain weakness that underlies it. An underlying sense of deficiency is the core experience of a weakened brain, often only vaguely felt but periodically breaking through intensely with a strong sense of not feeling okay or shame. The essential wounding of our time is a pervasive feeling of deficiency at the core in the self. It's the outcome of a weakened, fragile brain that physical and/or emotional malnourishment produces.

I have used the phrase "Weakened Brain Syndrome" as the simplest way to describe this phenomenon. A syndrome is a set of signs and symptoms that are correlated together. As with any new diagnostic category, it is through clinical experience that these issues are first noticed, and as is common with other syndromes, current neuroimaging equipment is not yet sensitive enough to measure the difference between a robust and a weakened or toxic brain. The only way to diagnose "Weakened Brain Syndrome" at present is through clinical symptoms.

It may well be that over time a better description of this phenomenon will arise. No matter what it's called, the clinical picture reveals a brain under attack.

A weakened, sub-optimal brain has become the norm. This brain weakness or toxicity has both psychological and physical dimensions. Psychologically the self has fragile self-structures (less emotional resilience), and physically there is reduced brain functionality due to diminished brain capacity, decreased neuroplasticity, and reduced neurogenesis (less neural flexibility).

This fragility indicates a brain on the tipping point, able to swing either way, into greater health or into pain and negativity. The brain's fragility sets a person up for the roster of mental health problems

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we see today. Such a vulnerable brain may be statistically average or normal, but it's *not* truly, radiantly healthy. From this fragile brain springs depression, anxiety, stress, PTSD, cognitive decline, and the mental health problems of modern living.

But again, why? How did this happen?

The brain is under assault, and it's a “death by a thousand cuts.” You don't notice one or two cuts. You don't even notice twenty or thirty. But after one or two hundred, you begin to falter and weaken.

The problem is that since each individual cut isn't noticed, it's hard to say what's wrong. Death by a thousand cuts is invisible. It's utterly baffling why you feel bad. And when people are baffled, they turn to authorities to find out what's wrong. The problem is then compounded when the “authorities” only treat the symptoms but allow the underlying causes to keep festering. This slowly weakens the brain even further, making it increasingly vulnerable to anxiety, depression and cognitive decline.

The brain weakens in two main ways:

1. Neurotoxins that actively damage neurons.
2. Malnourishment so the brain doesn't get enough of what it

needs for optimal growth (failure to grow strong).

We live in a highly neurotoxic world, where most brains are raised on the neural equivalent of “junk food” rather than getting genuine nourishment. Neurotoxins and neural “junk food” come in many forms.

It's obvious that nutritional deficiencies and physical neurotoxins hurt the brain. Recent neuroscience research shows that certain psychological influences are also profoundly neurotoxic. Without adequate nourishment at all levels, the brain fails to develop properly and sets the person up for emotional difficulties.

The mental health crisis is a crisis of brain health. As the brain is exposed to neurotoxins—physical ones, emotional ones, as well as mental and spiritual ones—it becomes increasingly vulnerable to depression, anxiety, stress, cognitive decline, and the other mental health problems we see. The self is unstable because the brain is

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not stable. The converse is also true – a destabilized self -weakens the brain. Depression, anxiety, stress, concentration problems, mood swings—all result from a self and brain that are fragile and unsteady.

The answer lies in strengthening the weakened brain and self. When we see how the brain and self are weakened, then we can see how to strengthen them. Let's examine both “neurotoxicity” and “malnourishment” to understand how much damage has been done. These two categories look simple, yet they describe much in modern life and appear in a wide variety of forms.

The good news is that the brain is remarkably resilient. With the right nourishment, it comes back to a remarkable degree and usually can develop into an optimal, peak brain.

2.3 - How to Heal and Optimize the Brain and Self

As the brain stabilizes, it helps the self to stabilize. As you feel better, you function better, recover faster from stumbles, and operate at higher and higher levels. When this happens:

- Depression recedes and fades away.
- Anxiety and stress reduce as the body relaxes and the brain strengthens.
- Emotion regulation develops and new life choices become possible.
- Memory, learning, and cognitive function increase, which leads to better executive function and feeling more solid inside.
- New depths of inner peace and love and compassion become available.

This book proposes a two-pronged strategy:

- 1. Nourish the brain and self to get stronger.**
- 2. Minimize what weakens the brain and self.**

Both of these are important, otherwise we'll be spinning our wheels. As long as you continue ingesting neurotoxins, merely adding good things will have only a minor effect. But these two antidotes

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together reverse the two main causes of the brain's deterioration. The next chapter goes into detail on this two-pronged strategy for developing a radiant, robust brain and self. This is followed by chapters that offer remedies for the disorders addressed by this book.

In identifying what the problems are, it becomes clear how to reverse them. The following discussion is only a cursory survey of these problems, for a thorough examination would require volumes.

2.4 - The Assault on the Brain: The Rise of Neurotoxins and Malnourishment

A “neurotoxin” is anything that poisons, kills, or debilitates nerve cells (neurons). Since the brain integrates our whole range of experience, it can be poisoned in a variety of ways. Neurotoxic effects also result from lack of nourishment. When the brain fails to obtain necessary nutrients, healthy development fails and brain cell death can occur.

To build and maintain a healthy, robust brain in today’s world demands you navigate a daily minefield very, very skillfully. No one sets out to poison their own brain, it just happens growing up in today’s world—a world everyone thought was safe but which medical research has recently shown is much more neurotoxic than anyone could have imagined.

Malnourishment: The Other Way to Degrade the Brain

As if the onslaught of neurotoxins wasn’t enough, the other factor both mature and developing brains contend with is widespread malnourishment.

There are two key nutrients for the brain:

- physical nutrients (food)
 - psychological nutrients
- The brain grows through physical food and psychological

experience. Both are essential for brain development. **Physical** 10

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food provides the raw material for building neurons and neural connections, but experience, especially emotional experience, shapes how this raw material grows into the developing brain.

The rapidly expanding fields of interpersonal neurobiology, attachment theory and research, developmental neuropsychology, show unambiguously how critical early experience molds the brain as well as how the adult brain’s structure and function is molded by ongoing experience.^{10, 11, 12} There are also, of course, important forms of mental and even spiritual nourishment for the brain, but overwhelmingly it is early and later emotional experiences that shape how strong and resilient the brain and self are—or how weak and fragile.

Physical and psychological toxins along with physical and psychological forms of malnourishment work together to produce a weakened brain and self.

2.5 - Physical neurotoxins

We live in a neurotoxic soup. Most people are under the delusion that government regulations keep neurotoxins out of the environment. Sadly, it's not true.

Under the category of neurotoxins, Wikipedia has a list 164 pages long of neurotoxins commonly found in today's environment, and each toxin on the list links to its own Wikipedia page. Of the more than 80,000 chemicals used in industry and whose waste pollutes the air, water, and ground, the Environmental Protection Agency (EPA) in America has no idea how many may be neurotoxic since there are no requirements that safety be proven before using them. Only a small fraction has ever been tested for safety. In many other countries with less regulation the situation is even worse.

Pesticides used on commercial foods are well-documented neurotoxins. Numerous scientific reviews confirm that pesticides which are neurotoxic to insects are also neurotoxic to humans.¹³ Dr. David Bellinger, a professor of neurology at Harvard, estimates America has collectively lost 16.9 million I.Q. points due to organophosphates, the most common pesticides used in the U.S. When mercury and lead are added in, he estimates the loss of 41 million I.Q. points.¹⁴

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Glyphosate, the main ingredient of the pesticide Roundup, is the most commonly used organophosphate. It is an antibiotic that kills all-important friendly bacteria in the gut as well as the soil. When the friendly bacteria in the gut are killed off, there are significant mental, emotional, and physical problems. Reduced bacterial biodiversity is linked to mental health problems.¹⁵ Glyphosate stimulates the body to produce zonulin, a molecule that opens up the tight junctions in the intestines that normally protect the body from toxins. When these tight junctions are opened up, toxins flow into the body. These toxins cause the body to mount an inflammatory defense, which soon becomes chronic and further attacks the body and brain.

Zonulin also opens up the tight junctions in the blood-brain barrier allowing toxins to flow into the brain. Further, gliadin, a protein in wheat and gluten, also stimulates zonulin and creates "leaky gut" in everyone who eats it, even though only 1–2% develop celiac disease and only 10–20% of people become gluten sensitive. It's a few short steps from leaky gut and leaky brain to toxic brain.

Eating organic food can reduce this exposure by 70–80%.¹⁴ However, glyphosate is in the dust, groundwater, and rain of 75% of America. It's in commercial meats, which are raised on GMO grains with high glyphosate levels. Almost all corn, cotton, and soy products are GMOs created to tolerate extremely high amounts of glyphosate. Eighty percent of commercial food in the U.S. is contaminated with glyphosate. Currently 600 million pounds are used yearly in the U.S., over 4 billion pounds worldwide.

Many of these chemicals are called developmental neurotoxins because they affect the growing brains of children and babies far more than adults. Testing has shown that American mothers, even those who try to avoid glyphosate, have breast milk with many times the glyphosate levels allowed in European water systems, sometimes 600 times higher.

Since glyphosate is almost everywhere and contaminates so much of the food supply, anyone who eats in restaurants gets exposed. A 2016 study done by researchers at the University of California San Francisco found measurable glyphosate levels in 93% of Americans. Highest levels were in children, where decimating the microbiome is

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especially harmful since the microbiome affects brain development and permanently alters gene expression.

The Environmental Working Group has published a study of cereal and breakfast bars. They found 43 of 45 conventional cereal products contained glyphosate at potentially dangerous levels, and one in three organic samples had glyphosate, though at lower levels. ¹⁶Ninety percent of cotton grown in the United States is genetically modified, bred to withstand high doses of glyphosate, and glyphosate was detected in 85% of tampons and other cotton hygiene products. ¹⁷

There are more chemical neurotoxins in the environment than ever before. German toxicologist Dr. Richard Straube, found that in the early 2000s, the average person had 20 toxins over the threshold of detection. Now that figure has gone up to over 500. ¹⁸

So just when the tight junctions of the protective blood-brain barrier and intestinal barrier are needed more than ever, the gates have opened, allowing in a flood of neurotoxins. Since the 1980s when glyphosate use exploded, the ensuing leaky gut and leaky blood-brain barrier have resulted in the brain being exposed to levels of neurotoxins that are unprecedented in human history.

Other significant neurotoxins include heavy metals. After plutonium, mercury is the most powerful neurotoxin known. Just a few molecules will instantly destroy brain cells. Everyone alive has some degree of mercury contamination. Common sources of mercury are seafood, dental amalgam fillings, coal-burning factories, and smog.

Some other leading offenders are heavy metals such as lead, cadmium, arsenic, and aluminum. These are present in many home and work environments, including the drinking water of many public water supplies. Smog from auto exhaust, coal-burning factories, and industry produce large amounts of heavy metal pollution.

Chemicals in plastics such as PCBs (polychlorinated biphenyls) and PVC (polyvinyl chloride), and PBA (bisphenol-A) are endocrine disruptors. When these wreak havoc

with a person's hormone system, there are emotional, mental, and physical consequences. The lowering of the age of puberty, with six-year-old girls getting their periods and developing breasts, is just the tip of the iceberg, as hormone imbalances have profound effects on mood and how you feel, aside

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from their well-known carcinogenic properties. Phthalates, found in thermal paper receipts (which you absorb when you touch them), milk containers, and many plastics are also endocrine disruptors that alter levels of hormones and disrupt brain function and mood. ¹⁹

These plastics are not biodegradable but over time reduce in size. They enter the water supply and oceans, and even seemingly clean products become contaminated. Most sea salt, for example, has microparticles of plastic in it. It's estimated that by 2050 there will be more plastic than fish in our oceans by weight. The average person swallows over 68,000 plastic microfibers each year just from the plastic dust landing on plates while eating. ²⁰ The average bottled water contains 325 pieces of microparticles of plastic per liter, another source of endocrine disruptors. ²¹

Clothing manufacturers use 20,000 chemicals, many of them carcinogenic and neurotoxic, and produce one-fifth of the world's water pollution. For example, fire retardants in sleepwear, carpeting, and furniture are known endocrine disruptors and neurotoxins. ^{22, 15} Washing fleece and other synthetic fibers in the washing machine produces microfiber waste water that pollutes waterways, farmlands, and oceans. Of course, this finds its way back into people's bodies, for no one can be hermetically sealed from the environment. We take in what's around us.

Toxic mold from a contaminated house, school, or office can wreak havoc on the brain. The symptoms can look exactly like Alzheimer's or dementia, as well as produce anxiety and depression.

Most indoor air is more polluted than outside air, from outgassing of rugs, upholstery, cooking, and cleaning products. Cosmetics and most skin care products are another key source of endocrine disruptors and heavy metals.

Air pollution in the form of smog produces small particles that are highly neurotoxic. In 2016 the World Health Organization (WHO) reported that 92% of the world's population breathe what it classified as unhealthy air. **Some of the tiniest particles in smog, 2.5 micrometers and smaller, pass through the blood-brain barrier and lodge in the brain.**

Once in the brain these particles act like tiny wrecking balls. They smash into delicate neurons and destroy them, producing a

trail of free radical damage, chronic inflammation, and amyloid buildup. When the brain is inflamed and the mitochondria of the neurons have high levels of inflammation, anxiety, depression, and cognitive decline follow.

This is an especially heavy burden on the growing brains of children. Researchers at Cincinnati Children’s Hospital showed particular risks to children for mental health disorders from polluted air. Studies linked traffic-related air pollution exposure to increased brain inflammation and generalized anxiety and depression in 12-year old. ²³, ²⁴ Lead author of one study, Cole Brokamp, Ph.D., said in a news release, “This study is the first to show an association between outdoor air pollution levels and increased symptoms of psychiatric disorders, like anxiety and suicidality, in children.”

A study in China documented that air pollution affected cognitive performance, especially in older people. ²⁵ Some experts now believe 20–30% of Alzheimer’s disease worldwide is due to smog and the tiny particles in the air.

While external environmental neurotoxins are pervasive and require vigilance to avoid them, there are also internal forms of neurotoxins. **Chronic inflammation is one such neurotoxin.** Foods can be classified as pro-inflammatory or anti-inflammatory. The Standard American Diet (SAD) is highly inflammatory and also produces excess free radicals, which are neurotoxic. **Chronic inflammation is a major source of brain deterioration, involved in Alzheimer’s and other neurological disorders.** Pesticides contribute to inflammation and make it worse. ²⁶ When things like wheat and glyphosate open up the intestinal and blood-brain barriers, toxins enter, so the body mounts an inflammatory attack that often spirals into autoimmune disorders and diminished mental health.

The mitochondria in cells produce the cells’ energy, and when the mitochondria of the brain decay, so does brain function. Inflammation, free radicals, and neurotoxins powerfully diminish mitochondrial function in the brain, directly leading to the mental disorders discussed in this book.

Stress hormones such as glucocorticoids are another internal neurotoxin. Short-term, moderate stress is fine, but chronic or extremely high stress produces high levels of glucocorticoids that

kill neurons, especially in the hippocampus. Glucocorticoid excess is implicated in Alzheimer’s, cognitive decline, brain shrinkage, anxiety, and depression, reduced immunity, cancer, and heart disease. ⁸ Chronic stress also raises inflammation levels.

Another source of assault is the microbiome, which consists of the bacteria, viruses, and fungi that line the intestinal walls. They produce chemicals that either help the brain or hurt it, depending upon the type of bacteria present. Poor diet, antibiotics, glyphosate, and other pesticides all damage the microbiome and create health and brain problems that will be detailed later.

Brain injuries such as concussions, hits to the head from car accidents, bike accidents, and athletic injuries not only jar the delicate tissues of the brain but can kill neurons. The brain has the consistency of uncooked tofu or soft butter. When an accident throws this delicate structure against the sharp, bony interior of the skull, the result can be brain damage. A single concussion doubles the chance of Alzheimer's. Recent research into chronic traumatic encephalitis (CTE) in football players shows that continual hits to the head are even more likely than concussion to produce brain damage and dementia.

Electromagnetic fields (EMF) produced by cell phones, computers, and Wi-Fi are damaging to mitochondria by activating voltage-gated calcium channels (VGCC) within the cell. The brain and nervous system are the most vulnerable to EMF exposure with the highest density of VGCCs in the human body. When VGCCs are exposed to EMFs, these channels open up so that about a million calcium ions per second flow through each channel, flooding the cell with calcium, draining magnesium, damaging free radicals, and producing high levels of inflammation. The mitochondria of the brain, heart, and testes are the most vulnerable to EMFs.

Headlines have focused on the more than 50% drop in male sperm count in otherwise healthy young men over the last few decades as one consequence of EMF exposure through laptop use and carrying cell phones in pockets. This decline in fertility rates shows no signs of diminishing. Researcher Martin Pall, Ph.D., has been sounding the alarm for this drop. He says that in animal models early exposure can be reversed but continual exposure results in permanent infertility.

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It may be that the rise in anxiety, stress, depression, ADD/ ADHD, and autism is the real story, however, as the brain and nervous system have the densest VGCCs in the human body.^{27, 28, 29} The brain's mitochondria are extremely sensitive to this disruption. When the neural mitochondria become highly inflamed and oxidized due to the inrush of calcium ions, neural functioning is disrupted and emotion regulation is impaired.

The most comprehensive study of brain development in American youth is the Adolescent Brain Cognitive Development Study, which followed 11,000 children for ten years. Preliminary findings show a premature thinning of the brain cortex in nine- and ten-year-olds who use electronic devices heavily. Thinning of the brain at this developmental stage in youth who use video games, cell phones, TVs, and computers for seven hours a day (not uncommon) has consequences that are not yet known.

When new technologies are introduced into society, there is a lag time before negative consequences become apparent. It often takes 20–30 years before science can establish the toxic health effects of something like tobacco, especially when it's a slow, gradual impact. The introduction of glyphosate and other pesticides, the increase in carbohydrates and sugar and reduction in healthy fat, the use of cell phones and computers, the 80,000 chemicals that have polluted our world—it takes time to comprehend their effects. We are just now understanding some of the potent neurotoxic results such things have.

2.6 - Physical Malnourishment

The lack of a proper diet produces more brain malnutrition than any other source. If you want to build a beautiful, high-end house, you need to use high-quality building materials, not rotting or inferior wood. It's the same with the brain. To build a robust, radiant brain requires high quality building materials, and the Standard American Diet (SAD) comes nowhere close.

We are just beginning to recover from decades of disastrous dietary policies that have produced the health crisis in the West. This is not the place to go into why these policies came about in the

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first place. It's a twisted story of junk science exploited by powerful economic forces, governmental acquiescence to industry lobbies, and the revolving door between corporations and government agencies, scientific mob mentality that invalidated opposing views—in other words, many of the usual culprits that influence society.

As a consequence, since the 1960s the medical establishment advocated a diet high in carbohydrates and low in fat. This misguided diet has caused a surge in heart disease, diabetes, obesity, cancer, Alzheimer's, metabolic syndrome, and many chronic diseases, as well as high levels of inflammation, lowered immunity, disordered metabolism, and insulin resistance. No surprise the brain gets hammered also.

Most people in this culture get far too much sugar and too many carbohydrates, too many unhealthy “bad” fats, and too few healthy “good” fats and fiber. The brain is composed of about two-thirds fat, and everyone needs plenty of healthy fat to build a better brain as well as to fuel it. The rise in childhood depression, anxiety, and ADD/ADHD rates began when Americans switched to high carb, low fat diets in the 1960s and beyond. On a low-fat and bad fat, high sugar diet, the growing brain cannot—repeat CANNOT—grow into radiant, optimal health. Plus, there are a number of nutrients that are essential for optimal brain development that very few children or adults get enough of.

Take an average American schoolchild's diet: breakfast of orange juice, a high sugar and carb cereal, low fat milk; lunch of bread, lunch meat, cookies, nonfat milk or fruit juice; dinner of hamburger, French fries, soda, dessert. It's mostly sugar and carbs; high bad fats, low good fats, and little fiber. Such a diet is a setup for a deficient or weakened brain and the mental health problems that follow. More details about this will follow in the next chapter, "The Solution."

Additionally, the average Western diet is highly inflammatory, which inhibits new neuron growth, dampens neuroplasticity, and prevents a fully healthy brain from developing. And a lack of antioxidants means the brain is deficient in antioxidant defenses that protect against the onslaught of free radicals that come with a diet high in sugar, carbs, bad fats, and low in fiber.

Other physical factors that contribute to under nourishing the brain include lack of exercise, especially aerobic exercise. Aerobic

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exercise (that is, exercise that gets you breathing hard and fast) is perhaps the most powerful way to build up the brain and increase cognitive function—in kids, adults, and seniors. That only a quarter of Americans get enough exercise is another contributor to impaired brain function.

Sleep is another key factor. Most Americans don't get enough sleep for optimal brain health. Most everyone needs seven or eight hours a night. Getting less sleep impairs the brain's self-cleaning process at night performed by the newly discovered glymphatic system. The brain's glymphatic system cleanses the brain's daily buildup of toxins and cellular debris, especially amyloid plaque that figures so prominently in Alzheimer's.

Emotional Neurotoxins

It is probably no surprise to learn that chronic stress, fear, and anxiety are neurotoxic. Chronic or intense stress (such as surviving a military firefight where half the platoon died) can kill neurons and up to one-quarter of the hippocampus can be lost. When trauma happens in childhood, damage to the hippocampus is multiplied, resulting in reduced hippocampal size and vulnerability to future anxiety, fear, stress, and depression.⁹

Childhood maltreatment correlates with lifelong elevated levels of stress and inflammatory hormones.³⁰ Being bullied either as a child or as an adult, living with intimidation and fear, is neurotoxic. Chronic anger and chronic loneliness also shrink the brain and are neurotoxic. Emotional isolation impairs new brain cell growth and damages brain development. The famous Adverse Childhood Experiences study done by Kaiser and the Centers for Disease Control and Prevention documents the lifelong effects of early stressors.³¹ In adults, not only stress but depression can cause the loss of

20% of the hippocampus, with longer periods of depression associated with greater brain cell loss ²

According to author Joseph Chilton Pierce, expectant mothers who are stressed or anxious give birth to babies with a smaller neocortex (the part that has the higher cognitive functions) and a larger hindbrain (that has the more primitive fight-or-flight survival

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circuits). Without a well-developed neocortex, there are problems with executive function, emotion regulation, and impulse control, leading to behavior problems, cognitive deficits, and emotional disorders. These babies begin life with significant neural disadvantages. ³²

The emotional life of most adults is rife with emotional neurotoxins—stressful, scary, or anxiety-producing relationships, relationships with emotional or physical bullying or harassment, important relationships where there is emotional coldness, distance, or controlling behavior. On top of this many experience financial stresses, illness, family stresses, worry about politics or the future.

These emotional neurotoxins produce physical neurotoxins that have a profound impact on the brain. Stress also disrupts the tight junctions of the intestines and the blood-brain barrier, allowing in toxins and producing inflammation in the brain and gut.

On the opposite side, as more and more people withdraw from human contact into their cell phones and computers, this lack or diminishing of real, physical relationship creates loneliness, social isolation, and a lack of real intimacy, which in turn produces stress, inflammation, increased interpersonal fear, and anxiety.

Healthy, genuine relationships are necessary to feel good, but with the retreat into screens, this vital emotional nutrient is in shorter supply than ever. The young are the most affected, for the developing sense of self weakens without the crucial ingredient of actual, in-the-flesh emotional relationships.

Stress and negative relationships alter gene expression toward lowered immunity and emotional distress. Stress damages the microbiome, which creates chemicals that lower mood and immunity. This further amplifies feelings of stress, which in turn hurts the microbiome even more. It's a vast interacting system that over time wears away the brain's integrity.

Emotional Malnourishment

Every human being needs high quality emotional contact and lots of it. Almost no one gets nearly enough. The first few years of life are critical for brain development,

requiring an emotionally attuned mother or other caregivers to form close, loving attachment

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bonds. Such a mother is quick to soothe painful feelings and to amplify positive emotions. These relationships get internalized as psychic structure and durable neural pathways. This internal self-structure then allows the person to regulate their emotions—to self-soothe when upset, enjoy pleasure, find love, develop creative work and talents in a meaningful life.

Even as adults, however, we continue to need lots of positive, loving, supportive relationships of all kinds—friends, lover, colleagues, family. The problem is that most people are fed a lot of emotional “junk food,” the equivalent of being on an emotional starvation diet, that provides inadequate emotional nutrition. American culture is especially prone to value independence and “the rugged individual,” and an overemphasis on this results in isolation, loneliness, and a massive deficiency in quality relationships. (Some other cultures err on the opposite side and have too much contact that is stifling, engulfing, or enmeshed, which also prevents optimal development.)

Western culture has seen a gradual fraying of the relationship bonds that create a healthy brain and self. As divorce levels have risen and family structures have collapsed; as economic crises have increased stress levels along with drug abuse and alcoholism; and as cell phones and electronic media have exploded, the quality of human contact has eroded in the last several decades.

An emotionally attuned, loving, empathic mother or caregiver is rare to start with. Throw in financial stresses, relationship stresses, work stresses, cell phones, the internet, social media, and you get many mothers with a distracted brain.

In experiments with monkeys, researchers found that a distracted, stressed mother monkey produced offspring that developed lifelong anxiety, high levels of stress hormones, depression-proneness, and susceptibility to a variety of health concerns including heart disease and cancer. ⁸The experimenters didn't even include cell phones or the internet. With the human brain so sensitive to early social interactions, how could children raised with distracted caregivers not have some weakness in their brain and self-structures as a result?

Parenting and actual relationships have taken a major hit with cell phones, computers, social media, and the internet. Restaurants

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are filled with silent families, each member looking at their cell phone rather than talking to each other. The heartbreaking scene of a mother focused on her cell phone, ignoring her crying baby in the stroller who's reaching out its arms for her is all too commonplace. Computer tablets have become virtual nannies and babysitters. Two-year-olds prefer interacting with an iPad to interacting with people, but encouraging this deprives the child of what it needs most.

Surveys show a third of people who text prefer texting to talking with an actual person. Most people check their cell phones 150 times a day (once every six minutes). Teens spend 8–11 hours a day on a screen. Ninety percent of 18- to 29-year-olds sleep with their cell phones. Video games and cell phones are viewed by many as addictions rivaling heroin. Many teenagers and 20-somethings seem more attached to their cell phones than their families.

When cell phones substitute for in-person, face-to-face interaction, essential emotional nutrients are lost. A world of virtual relationships creates a virtual sense of self, along with the ghost-like sense of not feeling entirely solid or firm.

So-called screenagers, who spend eight to eleven hours a day in front of screens, suffer incalculable harm. And when a two- or four-year-old's babysitter is a tablet, the consequences for the solidity of the self are even greater.

Our sense of self is molded by the quality of early emotional relationships that we internalize. Inadequate emotional nourishment produces a shaky sense of self. As this continues into adolescence and adulthood, the problem only worsens. Combined with inadequate nutrition, the brain's emotional malnourishment produces a fragile, unstable self that is highly vulnerable to stress, anxiety, depression, and all the rest.

Mental Neurotoxins

Pessimistic attitudes create chronic stress as the person is always bracing for the worst. Catastrophizing leads to anxiety and paralyzing fear, producing stress hormones and increasing inflammation; in other words, more neurotoxins. Optimists live 19% longer than pessimists.

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Critical self-talk is a kind of mental autoimmune disorder, and it's reached epidemic proportions. When the self-attacks itself, this negative, critical self-talk produces stress hormones and shame. The feeling of shame is so difficult to bear because it directly undermines our sense of self and makes us feel unworthy, not okay, unlovable.

Shame produces inflammation. ³³The “average” brain of the average person in the U.S. today is highly vulnerable to shame. The fragile brain that produces the fragile self easily fragments in challenging situations or when self-esteem is threatened (e.g., calling

yourself a “loser” or “stupid” or feeling rejected). When the self-fragments in the face of an assault like this, shame and inflammation result.

Lack of mental stimulation, deadening routine, or overstimulation and mental overwhelm all slow natural brain growth to a crawl, shrink the brain and create a neural environment that readily fragments.

Mental Malnourishment

The brain thrives on stimulation of all kinds. Cognitive stimulation in school, college, and throughout adult life are crucial for developing the brain. Lifelong learning after graduation is essential to prevent cognitive decline and to stay sharp. Computers and the internet are amazing tools to stimulate the mind and provide access to information in an instant. But technology is a double-edged sword.

One downside is that attention spans are decreasing at an alarming rate. A recent study put the average adult attention span now at five seconds. Clearly this limits how much real comprehension there is. And as wonderful as entertainment is, when so much screen time is devoted to computer games, movies and TV, music and sports, and so on, this mental “junk food” simultaneously starves the brain with empty mental calories and over activates it with a constant barrage of stimulation. The mental “hangover” is a weary mental numbness. The more overstimulation there is, the greater the mental numbness that follows.

Standardized testing shows that college entrance exam average scores have been falling for several decades, with record low levels

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reported in the last five years. Weakened Brain Syndrome (WBS) shows itself in many different ways and lowering cognitive function is yet one more symptom.

Spiritual Neurotoxins

Spiritual neurotoxins include frightening or shaming belief systems that threaten eternal punishment if the person isn't perfect or doesn't conform to rigidly prescribed behavior. Lack of meaning is another form, and lack of meaning produces changes in gene expression and stress hormones similar to chronic adversity.³⁴ The spiritual importance of meaning can hardly be overstated, for meaning is neuroprotective. When something is meaningful, it allows a person to endure even the greatest suffering, as *Man's Search for Meaning*, Viktor Frankl's classic work, demonstrates.³⁵

Spiritual Malnourishment

As organized religion has declined in the West, there have been two different reactions to this. On the one hand, some people awaken to spirituality and become seekers who imbibe the wisdom of several different spiritual traditions. On the other hand, many others lose sight of spirituality entirely in an increasing secularization. They adopt completely materialistic values bereft of a spiritual orientation. This creates an existential or spiritual void.

Such a spiritual void unmoors a person and makes the outer world the measure of all things. This outward, superficial orientation is profoundly disturbing, for there is no peace to be found there. The outer world is a field of constant flux and change. Peace is not to be found outwardly, only inwardly. But if there is never any inward focus, if life is a continual outward distraction, the necessary inner journey is never taken.

Although some can create a sense of meaning in life without an explicitly spiritual orientation, for many people such a spiritual void casts them adrift. Feeling lost in a meaningless universe without a larger sense of significance, self-gratification becomes the primary

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life impulse. Sensory pleasures are the only momentary relief from the stresses, existential fears, and anxieties that overshadow living. A spiritual anomie results, and, devoid of the renewal provided by inner peace, love, and joy, the ongoing stress can weaken the brain and immune system, and open the door to despair, existential anxiety, addictions, and other emotional disorders.

A Perfect Storm

Make no mistake about it: **The brain is under attack on multiple fronts.**

Never in evolutionary history has the brain been exposed to such a vast quantity of neurotoxins. Just at the time when the brain needs its protective blood-brain barrier the most, it has never been so vulnerable due to disruptions in the tight junctions that create a leaky gut and leaky brain, letting in more of these neurotoxins than ever.

A single neurotoxin is bad enough. A whole mix of physical neurotoxins together can wreak havoc on the brain, especially the growing brain of a child. Throw in emotional and other neurotoxins, and you've got a highly toxic stew. Then combine this toxic stew with malnourishment on all levels, particularly on the body level with deficient diet and emotionally with inadequate emotional sustenance, and the resulting brain weakness is far more vulnerable to the neurotoxic environment.

One additional problem is that most people don't even realize their brain is weakened and compromised. For example, many Alzheimer's patients don't realize how much they are cognitively impaired—because the very instrument that registers the problem is

itself damaged. It's similar with a weakened brain. And since the slippage happens slowly, it all gets normalized and the person believes everything is fine. Only afterward, when your brain begins functioning on a higher level, do you realize how diminished you were.

Remember, glyphosate has been found in 93% of Americans. That's 93% of the population that has some degree of leaky brain/toxic brain, and that's just one neurotoxin out of hundreds. Multiply this by

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some number (10, 20, 100—we don't even know how many) and the result is the average brain today—weakened, poisoned, compromised. Most everyone suffers from some degree of impaired brain function, but very few know it. Often only when symptoms such as anxiety, depression, or cognitive decline appear does the person

realize something is wrong.

The burden of this neurotoxicity and malnourishment falls

disproportionately on the young. When emotion regulation structures fail to develop optimally, we see the result in soaring anxiety and depression rates. On the other side of the age spectrum, older people notice the burden with memory problems and premature cognitive decline.

It's a perfect storm of countless neurotoxins colliding with early and continuous forms of malnourishment.

To give an overly simple illustration of this perfect storm and its multiple moving parts, consider how problems with early attachment relationships affect the brain. It's well understood in developmental psychology that myriad attachment difficulties lead to problems in internalizing strong emotion regulation structures. The lack of these internal structures increases stress hormones, which interfere with brain development. Additionally, cortisol and other glucocorticoid stress hormones kill off high numbers of good bacteria in the intestinal lining, allow an overgrowth of damaging bacteria, and disrupt the tight junctions that normally keep out damaging contaminants.

When the intestinal barrier is breached, harmful bacteria, viruses, proteins, and other toxins leak into the system. This also disrupts the tight junctions in the blood-brain barrier, so some of these same toxins enter the brain and disrupt neural functioning.

Now add in several courses of antibiotics and a diet that includes pesticides such as glyphosate, phthalates, and other neurotoxins that far more powerfully disrupt the membrane lining of the gut and blood brain barrier. What should be a protective barrier becomes a sieve. The brain's balance is thrown off even more as greater numbers of toxins enter and damage the highly sensitive neurons and the brain's microbiome and

upset the hormonal and neurotransmitter balance. Emotion regulation is further eroded. This makes it harder

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to establish healthy relationships, leading to further stress hormones, anxiety, and other symptoms, in a progressive descent.

Anxiety, depression, and negativity are natural feelings when the brain is under sustained, daily assault. How could such a person *not* see the world as dangerous, dark, and hard to navigate? The brain senses *something* is terribly wrong or dangerous in the world, but it doesn't know what.

When the threat isn't clear, danger becomes global or else the brain fixes on something, anything, so it can make sense of these feelings. Real dangers are amplified, and the brain goes on high alert, hypervigilant. The world is dangerous because the brain is getting battered. Only when the brain is healthy and strong does the world become safe again.

The emotional pain this creates can either look like a psychological problem that needs therapy, or a biological illness that needs medication.

It's not just a double whammy, it's a double, double whammy:

Physical neurotoxins together with psychological neurotoxins in combination with physical malnourishment together with psychological malnourishment. This quadruple whammy turns into a vicious downward spiral where neurotoxins and malnourishment reinforce one another. Significant malnourishment enfeebles the brain, rendering it more vulnerable to neurotoxic attacks and less able to recoup later. Neurotoxins further enfeeble the brain, rendering it more damaged by further malnourishment.

As the brain declines, all aspects of life erode. Emotion regulation is a central function of the brain, and it's often the first to go. No wonder we have an epidemic on our hands. The brain throws up all these symptoms to get our attention. Symptoms are the brain's way of saying, "Something is wrong! Pay attention here! Something is terribly, terribly wrong!"

Chapter 3

3.1 - Why Medication Is Rarely the Answer

Modern medicine has produced breakthroughs to improve the health of our species. Better sanitation, antibiotics, fixing broken

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bones, curing of many illnesses that previously were fatal—it's a tribute to science and medical discovery how much longer people live, from an average lifespan of 47 in 1900 to 77 in 2000. But the picture is far from an unbroken march toward perfect health nirvana.

While medicine has greatly curtailed the leading causes of death from infectious disease—tuberculosis, pneumonia, and diarrhea— there remain many diseases that medicine cannot cure or even treat. Chronic diseases are now the leading cause of death. Heart disease, cancer, stroke, type 2 diabetes, and Alzheimer's lead the list. According to the CDC, in 2012 half of all Americans had at least one chronic disease.

One critique of modern medicine is that its reductionistic thinking works well for broken legs or diseases with a single infectious agent that can be treated with a drug, but it is ill-equipped to deal with diseases that have multiple dietary and lifestyle causes— hence the current epidemic of chronic illness.

One important distinction is between cure and symptom relief. An antibiotic may cure a bacterial infection forever, but giving painkillers to someone with a painful infection must not be confused with curing the disease.

Much of modern medicine has become the treatment of symptoms rather than the discovery of cure. While symptom relief can be helpful to a suffering person, such medications always come with side effects, which often lead to additional medications to manage the side effects.

For many diseases, the medical-pharmaceutical complex has developed into a subscription model of taking symptom-relieving drugs for years or a lifetime. There are many factors that contribute to this, from the complexity of diseases to the quest for higher profits driving the search for solutions. While a subscription model may be better for business, for everyone else it's obviously preferable to find a cure and remove the suffering permanently.

It's the same story when it comes to the mental health field. Psychiatric drugs are necessary and very helpful at times. But there is a large shadow side to this medication which is rarely acknowledged. In most cases these drugs only reduce or mask the symptoms. They don't "cure" emotional or mental disorders.

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The widely used benzodiazepine anti-anxiety drugs are depressants. They slow down the central nervous system, slow metabolism, and lower blood pressure. Taking a depressant lowers anxiety and can provide much needed relief. But these drugs also

impair a person's presence and ability to think; they slow reaction time and dull aliveness. This medication temporarily reduces or masks anxiety. It does not cure anxiety.

Antidepressants increase certain neurotransmitters and change mood (although they are effective less than 50% of the time). For some people they are important and clearly helpful, and after a few months or years of improved functioning and getting their emotional needs met, they can then stop without slipping back into depression. For most patients, however, this is not the case. No drug company will claim antidepressants "cure" depression, instead they temporarily reduce the symptoms of depression. For some patients the brain adapts to the antidepressant, makes fewer neurotransmitter receptors, and with long-term use the antidepressant induces chronic depression.³⁶

Alzheimer's drugs are almost completely ineffective and only postpone a worsening of symptoms by a few months. ADD and ADHD medication provides the nervous system with a temporary boost that masks the symptoms of these disorders but does not cure it.

The side effects of psychiatric medications are often so severe that patients stop taking the drugs. For example, more than half of patients taking antidepressants lose their sex drive, have erectile dysfunction, or inability to orgasm (and if all this isn't depressing, what is?). Other common side effects include: weight gain, sleep disturbance, daytime drowsiness, nausea, headaches or migraines, blurred vision, increased depression, constipation or diarrhea.

3.2 - The False Analogy of Insulin

The psychiatric field likes to compare the use of psychiatric medications to the use of insulin by those with type 1 diabetes. A type 1 diabetic can't make insulin. Providing the patient with insulin may not cure the disease, but it manages it quite effectively and

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allows the person to lead a relatively normal existence, even though the person needs to take insulin for life.

As the parent of a type 1 diabetic son, I can't express how grateful I am for modern medicine's discovery of insulin and its life-giving consequences. However, as a psychologist I can't help but notice the false equivalence this analogy draws.

Insulin is what the body requires to metabolize glucose, the single hormone the body needs for this function. But when it comes to the brain, it's a whole different story.

For example, take the serotonin deficiency theory of depression. This has been highly marketable due to its simplicity. The idea is that lack of serotonin causes depression, and adding serotonin, just like insulin, will fix the depression. So appealing was this idea

that it has become a 16 billion dollar a year industry, even though research has now shown this model to be incorrect.

First of all, there is no serotonin deficiency in depression. Chapter 4, “Holistic Healing of Depression,” goes into greater detail on the research behind the myth of the “serotonin deficiency theory of depression.” Most studies show depressed patients have normal levels of serotonin. Some studies indicate patients have higher than normal levels, a few show lower levels, but most show normal levels.³⁷ How can adding more of something there is no deficiency of be compared to supplying the body with missing insulin?

Secondly, there are over 100 known neurotransmitters, and more than 20 are involved in mood regulation. Additionally, there are dozens of other biochemicals that regulate mood, such as hormones, growth factors, enzymes, transcription factors, and protein families.

The complexity of a brain that produces human consciousness is unfathomable. With multiple redundancies, various feedback loops and backup systems, the neural conversation between all these elements that contribute to how we feel is an order of complexity far beyond our current understanding.

To increase a single chemical or say that anxiety or depression is “because” of too much or too little of one or two chemicals is a hopelessly simplistic, outdated view of the brain.

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An increase in a single brain chemical changes the whole intricate balance of neural communication. Replacing one missing hormone (insulin) that has specific actions is not comparable with the psychiatric situation of boosting one chemical that is not deficient (serotonin) among dozens and dozens of other neurotransmitters, hormones, enzymes, transcription factors, etc. that are in continuous, multifaceted communication, mutual feedback and interactive mutual self-regulation. It’s like comparing apples to refrigerators.

Third, the serotonin deficiency theory of depression has given way to one in which neurogenic factors are key. Chapter 4 details how antidepressants’ effectiveness comes by increasing the rate of neurogenesis and neuroplasticity, not by adding serotonin to the brain’s soup. Even when antidepressants do “work,” it’s through an entirely different mechanism than adding serotonin to the system. The insulin analogy breaks down before it can take off.

Antidepressants are the best case. When it comes to anti-anxiety drugs the analogy is more untenable still. The widely prescribed anti-anxiety agents, the benzodiazepines, do not exist in nature or the body. This class of synthetic chemicals bludgeons the mind,

dulls the senses, slows reaction time, confuses thinking, interferes with memory, reduces presence, is addicting, and causes brain damage. ³⁸

In cases of extreme anxiety or crisis, benzodiazepines can certainly be helpful. They act like a sledgehammer on the GABA system to reduce neural excitability. In the right amount they provide symptom relief even while reducing presence and cognitive ability with only slight “zombification.” Much more common are higher doses of Xanax or Klonopin or Ativan or Valium that amplify this zombification effect. Since the brain is dulled, the person usually doesn’t realize how powerfully numbed they are until they get off the medication.

Even worse, it’s being given to children whose brains are still developing. It is not yet known to what degree brain damage will be seen in adults who were prescribed benzodiazepines as children.

The comparison of benzodiazepines to insulin is a mistake, which in logic is called a category error. A category error is very bad science, but because it sounds plausible on the surface, it’s become “successful.” Modern psychiatry, with its potent medications, has been compared to trying to do brain surgery with a blunt axe.

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Yes, you’ll affect the brain and how the person feels. But there is significant collateral damage.

Some symptoms may be reduced for some people, yet clubbing the brain with such powerful chemicals bring changes that are only beginning to be understood. For instance, taking an SSRI antidepressant (which temporarily boosts serotonin in the brain) causes the brain to downregulate serotonin production, so that an increasing dependence on the drug is created. This makes it all the more difficult to stop taking the medication later on. That they “work” by reducing and suppressing symptoms (though generally only slightly better than a placebo) confounds the situation further by mimicking success.

Psychiatric medications do not cure emotional disorders, they dampen symptoms. The brain of someone with anxiety does not have a shortage of Xanax, nor is a depressed brain short on Prozac. Someone with ADD/ADHD is not suffering from a lack of Adderall or amphetamine. These are all synthetic drugs that do not appear anywhere in nature. To heal the brain, we need to look beyond patentable, synthetic medications that beat the brain into muffling symptoms. We must understand how the brain grows and heals (see Chapter 2, “The Solution”).

Psychiatrist Peter Breggin, M.D., author of *Talking Back to Prozac* and *Medication Madness*, said in response to being asked what people don’t know about psychiatric medication, “They don’t know that all psychiatric drugs are neurotoxins. They don’t

know that they aren't correcting biochemical imbalances, they are causing biochemical imbalances." 39

Faulty reasoning with false analogies is poor science, even though it may be genius marketing for pharmaceutical companies. Is this what Western healthcare and psychiatry have come to: turning children and the population into zombies? Is this really the best we can do? There must be a better way.

3.3 - The Importance of Painful Symptoms

Pain is a signal that something is wrong. A painful toothache signals the need to go to the dentist to fix a cavity. Once you make

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a dental appointment and set in motion the process to fix it, the pain is no longer necessary. Then you can take a painkiller until the dentist fixes the cause by filling the cavity. But if all you do is take painkillers, the problem will get worse, the decay will increase.

The massive suppression of the pain of mental disorders in America and the developed world is akin to taking painkillers without fixing the cavity. No doubt about it, mental disorders will multiply when the underlying problem isn't fixed. Freud called this "the return of the repressed." Emerging needs and feelings don't just go away. The psyche expresses its needs continually, and whatever we push down will come back up until this information is integrated.

For example, a patient came to me complaining about still feeling depressed and anxious despite having been on an antidepressant for many years. When I asked about his life he reported a stressful job and marriage. In probing further, it came out that he'd been having an affair for the past six years; he was involved in some shady and illegal dealings through his work; and he felt guilty about not spending time with his kids. How could he not be anxious and depressed? His life was massively out of alignment with his deeper values and self.

Most anyone would be anxious and depressed in circumstances like this. Such feelings are beneficial signals that things are off. Numbing the pain with an antidepressant only enables a bad situation to become worse. His anxiety and depression didn't go away until he straightened out his marriage, his job, and his relationship with his kids, and came into alignment with his own deeper sense of internal integrity. He needed to feel and understand what his pain was telling him. Instead of taking antidepressants he could just as well have been using alcohol or heroin. Far too often, that's what psychiatric medications have become—legal drugs that suppress symptoms.

This is one reason why rates of mental disorders have increased so much. Although temporary pain relief may appear to help in the short run, over the long run the world gets worse when we suppress symptoms, not better. The current solution? More and newer medication or higher doses. And of course, more of the same thing results in more of the same poor results. Sticking our collective heads in the sand isn't working.

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3.4 - Has Psychiatry Become Part of the Problem?

As modern psychiatry has morphed into bio-psychiatry over the past 50 years, the field has increasingly become an extension of the pharmaceutical industry. At first, beginning in the 1960s and '70s, psychiatric education in the bio-psychiatry model was influenced by the large drug companies. Then in the '80s and '90s educational materials were paid for and developed by drug companies. Now the training of psychiatrists is almost entirely organized and controlled by the drug industry mentality.

When psychiatry is controlled by the pharmaceutical mindset, an unhealthy mutual dependence arises. The pharmaceutical industry makes vast sums of money from patentable drugs. Natural brain nutrients like omega-3s or curcumin, which can't be patented, are ignored. Psychiatrists make their living by writing prescriptions for patented drugs. No one needs to see a psychiatrist for fish oil or curcumin. So Big Pharma and psychiatry are joined together in a professional embrace of mutual financial dependence.

Any challenge to this psychiatric-pharmaceutical industrial complex threatens the livelihood of both, and dissenting voices and research are dismissed. But sooner or later the larger truth will win out, I believe, even when powerful financial resources are arrayed against it.

For the great majority of psychiatrists, treatment equals prescribing drugs. Conventional psychiatry has become the marketing arm of the pharmaceutical industry, pushing ever more powerful, mind-altering drugs.

The massive introduction of powerful brain drugs is dulling the population, numbing the aliveness of countless millions, and squashing the symptoms we should be listening to. It's no wonder zombie movies and TV shows are so popular—they symbolize what's happening now, the dulling and numbing of great masses of people.

Surprisingly, the majority of antidepressants and anti-anxiety drugs are not prescribed by psychiatrists but by primary care physicians. Most anyone can walk into a doctor's office and walk out with prescription for an antidepressant or tranquilizer. Primary care doctors who have almost no real training in psychiatry prescribe these drugs like candy.

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There isn't real evil here, just well-intended physicians who want to relieve suffering. Most have no idea how medications can increase suffering in the long term. It's the same with psychiatrists and employees of pharmaceutical companies. Nearly all the people I know in these fields are well-meaning individuals who believe they are helping to relieve suffering. No one should be demonized. They are just trying to help people with the only tools they have. When all you have is a hammer (prescribing brain-altering drugs), everything looks like a nail (brain imbalances that need drugs).

It is also important to note some exceptions; a small percentage also do psychotherapy. Similarly, not all medication is negative; sometimes it is helpful to relieve anxiety or give a sleeping pill to suppress the symptom and provide a bridge to better functioning.

To add another layer of complexity to this picture, sometimes a round of antidepressants results in the person functioning better and tapering off. Sometimes medication does work as advertised. And to confuse the situation further, most conditions do improve without treatment, so when the person feels better, it appears that the medication "worked."

Psychiatric medication is not all bad or all good. It's a more complex picture. Sometimes medication works just fine with minimal problems. However, I believe they are overprescribed most of the time, and worsen the problem in the long run, but a more nuanced view sees both the good they offer as well as the destructive effects they have overall.

To the degree that psychiatry uses medication to relieve intense, acute distress or to contain out-of-control symptoms, psychiatry is helpful. The degree to which medication becomes chronic and simply suppresses symptoms is the degree to which psychiatry has become part of the problem. Unfortunately, the great majority of the time, psychiatry results in symptom suppression and therefore contributes to the problem.

Psychology Has Only Half a Solution

Psychotherapy is effective in many cases, but why isn't it more effective? For some it is life-changing and powerfully transformative.

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For others it is ineffective. For many more it is much less effective than it could be.

By its near exclusive emphasis on psychological factors, psychotherapy has mapped the psyche but ignored the physical foundation of brain health. With a weakened brain, a weakened, fragmentation-prone self follows naturally. Healing the self may help the brain but does not heal it.

De-Mystifying the Perfect Storm

When psychiatric medications that should contribute to the solution actually are part of the problem, this mystifies the perfect storm even further. To solve this problem means de-mystifying it by naming the contributing factors. So, we have this quadruple whammy of 1) physical and psychological neurotoxins together with 2) physical and psychological malnourishment shrouded by a 3) mystifying process of treatment that worsens the problem by suppressing its symptoms but is language as “correcting a biochemical imbalance.” It’s a complex picture where insidious forces interact to produce an epidemic that’s growing relentlessly.

We know many ways to heal the self. But are there natural ways to heal the brain without the side effects of psychiatric medications? Yes. Are they used? No. Therefore, this book. The strategy of symptom suppression versus true brain healing is the larger issue. Which would you choose?

The Problem of Specialization and the Fragmentation of Knowledge

Specialization has produced enormous benefits as knowledge in all fields has multiplied exponentially. But a downside is that specialists think within their own narrow domain and increasingly only talk to others in that same sphere of expertise. They can become insulated from new, emerging paradigms and knowledge outside that area.

Specialization, especially in medicine, treats different parts separately and loses track of the whole. I had a friend who had

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massive pain in his heart area. He went to a gastroenterologist clutching his chest in the belief it might be heartburn from acid reflux. His chest pain was so great he could barely get through the exam. After the doctor told him there was nothing wrong with his esophagus or stomach, that he’d be fine and shouldn’t worry, he was unable leave the office for hours due to intense pains in his chest. He died that night of a heart attack. Even without medical training, who besides a specialist wouldn’t have considered that this man clutching his heart was having a heart attack?

We know a great deal about how to heal the brain. Psychiatry, in one of medicine’s great ironies, generally leads in the opposite direction, weakening instead of healing the brain. The medical field, with a few notable exceptions, is remarkably ignorant on the role of diet and nutrition.

Early in the 20th century, as science was making breakthrough discoveries with antibiotics and new drugs, medical schools made a fateful decision. Medical schools decided to specifically exclude nutrition from medical education and instead focus upon

pharmaceutical medications. The mold was set so medical and psychiatric education became centered upon prescribing drugs.

The result is that the great majority of physicians have never had even a single course in nutrition, at most they've had an hour-long lecture. This decision by medical schools to exclude nutrition was bad enough for regular medicine; for psychiatry it was a disaster.

It's a shame. A medical education could be excellent preparation to understand the connection between food and mood, and how to strengthen the brain. Instead, psychiatric education dismisses nutrition in favor of prescription medications that often make the whole problem more damaging. As a consequence, conventional medicine and psychiatry lack the conceptual tools with which to understand, diagnose, and truly heal this present brain crisis.

The field of psychology has been torn by internecine wars between different schools. Cognitive therapists put down psychoanalysts; Jungians fight with Freudians; somatic therapists make fun of talk therapy; each school striving for its own supremacy. There is some movement toward a blending of best practices and theoretical integration, but much too little.

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The specialized training each school of psychotherapy requires develops a cult-like adherence in its trainees to one particular school's approach as the best way to heal the self. "If it worked for me, it should work for everyone" is a common belief.

A theoretical one-up mentality plagues much of modern psychotherapy. This results in a Tower of Babel situation, where the various schools of psychotherapy become silos that rarely talk to therapists outside their particular silo. This muddies the waters even further.

Integration, Not Further Fragmentation

To heal the fragmentation of knowledge brought about by specialization requires breadth and width, not merely depth in a particular field. Psychiatry has been focused on the level of effect but ignores the level of cause. Psychotherapy addresses only half of the problem. Meanwhile the multiple factors that weaken the brain and self- go unaddressed, and they deteriorate further.

The usual debate between psychology and bio-psychiatry frames the issue in terms of a chicken and egg problem: Which came first? Do biological problems cause depression and anxiety or do psychological problems and unskillful living cause biological effects? But this creates a false dichotomy that doesn't exist. We are psycho- physical beings. The chicken and egg evolved together. It's both/and rather than either/or.

On the one hand, as psychology has increasingly specialized, its focus on psychotherapy disregards the body and brain; lip service is paid to the physical with an occasional referral to a psychiatrist for medication. On the other hand, as bio-psychiatry has been captured by the drug mindset, its focus on medication disregards the psyche; lip service is paid to the psychological with an occasional referral to a psychotherapist for therapy. Going in opposite directions is exacerbating the problem, not solving it.

Dickens was right when he wrote, “It was the best of times, it was the worst of times.” We know more about brain health, and we have more resources to support the healing and growth of the brain and self into radiant vitality than at any other period in history.

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At the same time, our environment is vastly more polluted with neurotoxins, and there is greater malnourishment and mystification than ever. It's never been a better or worse time for the brain.

The knowledge we need is there but not in conventional psychiatry or psychology alone. The fields of holistic health, nutritional science, functional and integrative medicine, depth psychology, interpersonal neurobiology, transpersonal psychology, attachment theory, and developmental neuroscience provide the missing pieces. They only need to be put together into a new, meaningful whole. Although more information waits to be discovered, we already know a great deal about how to heal the brain and self.

This approach can be called holistic therapy, integral or integrative psychotherapy, functional psychology, for as yet there is no standard name for this emerging field. To heal the mind-body split, psychotherapy must fully integrate the brain, just as psychiatry must give more than a tip of the hat to psychology.

Yet out of this specialization and fragmentation come the outlines of a new resolution. Perhaps this fragmenting separation was even necessary to create the conditions for a larger dialectic; thesis and antithesis producing a greater synthesis. The more both sides pull apart, the more an integrating wholeness comes into view.