

*Breakthrough*  
**DEPRESSION  
SOLUTION**

*A Personalized Model for Relief from Depression*

Mastering Your Mood  
with Nutrition, Diet  
and Supplementation

SECOND EDITION

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## Chapter 7



# Personalized Medicine with THE ZEEBRA Approach

The ideas as to what causes depression are not based on strong science, and our treatments are not working nearly as well as they should. Psychiatry is in crisis. The usual treatment mode (typically based solely on a subjective psychiatric examination and construction of a symptom list) often leads to psychiatrists blindly searching for a medication that might work. Body factors such as nutrition, toxins, hormones, allergies, biochemical risks, and medical disorders are typically ignored.

No amount of changing this approach will work, because the basic underlying concepts are wrong. We need an entirely new way of looking at patients. We must stop treating them according to lists of subjective symptoms, and we must stop acting as if one person were the same as the next. Instead, we must start seeing patients as the individuals they are and then diagnose and treat their disorders accordingly.

### **The Way It Could Be**

Earlier in this book, I asked you to imagine being sent to a psychiatrist by your family doctor because you had sleep difficulties, a lack of energy, agitation, “the blues,” and other symptoms. As you recall, during the imaginary psychiatric examination, you were asked only about how you felt, and your answers became the sole basis of your diagnosis of depression and the medications you received.

Now imagine that this psychiatrist asks you, in detail, about your diet, the medications and supplements you take, the health of your relatives, and what you do every day, trying to identify any situations or substances that might be causing your depression.

Next this psychiatrist orders lab tests to look for physical problems that might cause or worsen depression, such as the following:

- Vitamin deficiencies
- Toxic metals
- Hormonal imbalances
- Low levels of certain vitamins
- Amino acid and fatty acid imbalances
- Low or high levels of certain minerals
- Celiac disease or other food sensitivities
- Imbalanced levels of digestive enzymes
- Dysbiosis (“bad” bacteria, yeast, or other flora in your intestines)
- Parasites

When all these tests are completed, the psychiatrist does not give you a prescription, because he wants to see the results before making a treatment decision. After all, your depression may be rooted in a food sensitivity, nutrient imbalance, or something else that can be corrected without the use of psychiatric medications.

When the results have come in and the psychiatrist sees you for a second visit, he may recommend a medication and nutritional support. But the medication will be carefully selected and targeted and therefore will be much more likely to work. It won't be a “Try it and see if it works” prescription based on studies of hundreds of people who are nothing like you; it will be individualized, targeted treatment based on specific genetic markers. In other words, it will be just for you.

## **Integrative Psychiatry**

The approach I just described is called integrative psychiatry, a way of looking at each person as a whole person, with unique biochemistry and nutritional needs, which, when balanced, allow for health and vitality. The practice of integrative psychiatry is based on five basic things:

- Focus on each individual's unique personality, environment, and physical makeup
- Care for the whole patient, not just the disease
- Understanding how the human body and mind are connected
- Restoring health instead of simply reducing symptoms
- Increasing the body's nutrients to promote long-term health

By focusing on the individual as a whole, integrative psychiatry often produces improvement and encourages healing where traditional, symptom-based treatments have failed.

Jill, a thirty-three-year-old single mother with depression and bulimia, had requested a consultation with me. After having tried many medications, she was seeking a natural treatment for her depression. Many of the medications she had tried left her with side effects that either decreased her sex drive or impaired her ability to care for her disabled son. She needed relief immediately; her symptoms of depression and bulimia were interfering with every aspect of her life. After my consultation, I recommended different medications for Jill, though Jill's preference would have been to take no medication. These new drugs greatly improved her symptoms.

Mary was forty-two when I first met her. By that time, she had struggled with alcohol abuse and depression for many years. She was not alone in her struggles, as her siblings and father had also dealt with depression and substance abuse. I ordered a complete metabolic and nutritional evaluation. Based on the results, I found that Mary had a B<sub>12</sub> shortage and high levels of casomorphin (a morphine-like chemical generated because she could not digest casein in dairy products). After Mary eliminated dairy and all casein from her diet and took B<sub>12</sub> injections, her depression lifted.

Harry was fifty when he considered "a different approach" to treating his depression. In his five years with fatigue and depression, Harry had been treated with antidepressants, antipsychotics, and anti-anxiety medications without significant relief. After taking a complete history and testing, I found that Harry had low testosterone, a zinc shortage, and sleep apnea. When these problems were corrected, Harry's symptoms improved. Now Harry has no symptoms of depression.

The fact that each of these patients required a different treatment to return to health is not surprising. One person may need nutritional support and medication, another lots of exercise and psychological guidance but no medication, and yet another medication with relatively little change in diet and lifestyle. That's the difficulty and the beauty of integrative psychiatry. It can be more difficult to sort through all the possibilities to develop a treatment plan, but when your psychiatrist does, it is much more likely to be effective.

## THE ZEEBRA Approach

To ensure that every aspect of a person—mind, body, and spirit—is investigated and restored to balance, I've devised a simple mnemonic: THE ZEEBRA.

**T** is for Take care of yourself.

**H** is for Hormones and Herbs.

**E** is for Exclude.

**Z** is for Zinc (and other minerals).

**E** is for Essential fatty acids and cholesterol.

**E** is for Exercise and energy.

**B** is for B (and other) vitamins.

**R** is for Restore.

**A** is for Amino acids and proteins.

It may not be obvious how this list of items relates to depression, but each item is very important. Here I explain the approach briefly; I go into each component further in chapters 8 through 15.

### ***T—Take care of yourself***

Psychiatrists have assumed, without proof, that depression results from chemical imbalances in the brain. Treatment has primarily consisted of prescribing medications that may restore proper balance. But even if we had medications that could do so consistently, shouldn't we be looking for the causes of the imbalance?

But how about too much sugar in the diet? The brain is fueled almost entirely by glucose, the form of sugar in the blood, so it should be no surprise that low levels of blood sugar can cause irritability, anxiety, and other mood disturbances, including depression. Although it sounds strange, eating too much sugar can cause blood sugar levels to fall very quickly.

Studies have consistently shown a link between poor diet and depression. In 2012, researchers looking at 8,964 Spanish participants found that eating fast food (but not baked goods) increased the risk of depression. Soft drink consumption has also been linked to aggression and suicidal behaviors in American high school students.

A 2015 study of seventy thousand women showed that a diet high in carbohydrates is linked to a higher risk of depression in women who have gone through menopause. The researchers also found that a diet high

in fiber, whole grains, vegetables, and fruits was linked to a lower risk of depression. Similarly, a 2013 study of 4,215 participants aged thirty-five to fifty-five showed that women who followed a healthy diet according to the Alternative Healthy Eating Index had 65 percent less likelihood of recurring depressive symptoms than women who ate a less healthy diet.

The next year, researchers studying 43,685 women aged fifty to seventy-seven who were depression-free for twelve years showed that following a diet likely to lead to chronic inflammation was linked to a higher risk of depression. The researchers concluded that chronic inflammation may underlie the link between diet and depression. The pattern also applies to children and adolescents, who show worse displays of mental health when following an unhealthy diet.

Heather started the day with a sugary coffee drink, had a doughnut in mid-morning, kept candy and cookies in her desk at work, and ended the evening with a big bowl of ice cream. Her mood crashed right about the same time as her blood sugar, about half an hour after she'd eaten something sweet. I suggested she start the day with a protein-rich breakfast and that she snack on whole grains coupled with a small serving of protein (such as cheese or cottage cheese) to keep her blood sugar levels more stable. She also stopped eating her high-sugar bedtime snack. As a result, Heather's depressed moods improved—without medication.

In addition to excess sugar, sleeping problems—particularly obstructive sleep apnea, which causes one to literally stop breathing repeatedly while sleeping—may play a role in depression. Obstructive sleep apnea is not only linked to depression; it may also interfere with the actions of certain antidepressants. To make matters worse, certain medications used for depression make sleep apnea worse, which can heighten depression. How many people with obstructive sleep apnea or other sleep disorders are caught in a vicious cycle of depression that their doctors cannot break because they don't know about it?

Insomnia has also been implicated in depression. Studies have found a significant relationship between the severity of insomnia and depressive symptoms, with greater insomnia linked to greater depressive symptoms and vice versa. Researchers have found that teens with depression report many more sleep problems than their nondepressed peers and that

depression and disturbed sleep are closely related. In fact, poor sleep is a predictor of depression and of disability retirement due to depression. But it's not just a lack of sleep that is the problem; short- and long-term sleep deprivation has been linked to an increased risk of depression in adults.

Poor digestion can also be a factor in depression. Most psychiatrists are aware that depression can interfere with appetite, but few fully understand the relationship between good digestion and good mental health. Proper digestion involves the effective breakdown of food and absorption of nutrients. Key to this process are probiotics, otherwise known as the “friendly” bacteria in the intestines. Probiotics have been shown to improve nutritional status, overall mood, and symptoms of anxiety.

Chapter 8 discusses diet, sleep and stress and their link to depression, along with ways to ensure that problems in these areas are detected and resolved.

### ***H—Hormones and Herbs***

The idea that hormones are linked to depression in women is firmly grounded in science and popular culture. You can see the effects of hormones at an early age when pubescent girls, who before puberty were no more likely than boys of the same age to have depression, quickly become much more likely to be depressed. In later years, they may have depression linked to premenstrual dysphoric disorder, postpartum depression, or menopause.

Although it's not as well-known, hormones have also been linked to depression in men. Indeed, the male hormone testosterone used to be prescribed for men with depression, but that practice was stopped decades ago with the introduction of modern antidepressants. But hormone treatment for depression may be making a comeback. A small study conducted at Harvard Medical School's McLean Hospital found that about half the men studied who were not helped by standard antidepressants had low or low-normal levels of testosterone. Chapter 9 discusses why it's important for those with depression to have their hormone levels checked and, possibly, corrected. Adjusting hormones can often relieve or get rid of long-standing depression in many individuals.

Chapter 9 introduces exciting new research on phytotherapy, which is the use of plant-based herbs that have been shown to have positive effects on neurochemistry. The herbs discussed in this chapter include

St. John's wort, curcumin, and rhodiola. Curcumin, a traditional spice used in Indian food, has demonstrated antidepressant-like effects in animal studies. Studies involving humans have also reported improvement in symptoms when curcumin was given jointly with standard antidepressants such as fluoxetine, venlafaxine, and bupropion.

### ***E—Exclude***

The integrative medical approach involves testing for and excluding digestive problems that can worsen depressed moods. Celiac disease is a case of the body attacking itself. It stems from a damaged immune system launching a full-scale attack on harmless substances in the body. In the process, it damages the small intestines and other parts of the body. A substance called gluten, found in wheat, barley, and rye, sets off that immune response, which leads to constipation, diarrhea, abdominal bloating, lack of appetite, vomiting, bloody stools, and other symptoms. These other symptoms include depression and low nutrient levels that may develop due to intestinal problems and lack of appetite. If certain nutrients are low, the depression may worsen.

Recent studies have also suggested that another syndrome produces symptoms similar to celiac disease without being true celiac disease. Non-celiac gluten sensitivity may simply be a sensitivity to gluten rather than a true disease. Further study is needed to come up with criteria for diagnosis.

Celiac disease, elevated neuropeptides from improper digestion of wheat and dairy foods, food allergies, and other problems with the digestive system, including Crohn's disease and ulcerative colitis, must be ruled out in a physician's exam. Chapter 10 examines these digestive contributors to depression.

### ***Z—Zinc and other trace minerals***

In addition to keeping the immune system strong and the memory sharp, zinc plays an important role in the production and use of neurotransmitters—brain chemicals that help stabilize mood. This is why low levels of zinc have been linked to major depression and why zinc in the form of a capsule or tablet has an antidepressant effect in many people.

Zinc also enhances the effects of antidepressant medications in certain people. A study published in the *Journal of Affective Disorders* reported on sixty people aged eighteen to fifty-five with major depression. They

were all treated with imipramine, a standard antidepressant. In addition, half were randomly assigned to receive 25 milligrams (mg) of zinc per day, while the other half received a placebo. When the researchers retested study subjects after twelve weeks, they found that zinc supplementation reduced depression scores in people who had not been helped by antidepressants in the past. This study suggests a major role for zinc in treating depression, especially among those who fail to get relief from antidepressants alone. Every depressed patient should be tested for a zinc shortage and treated if he or she has a low level.

Researchers reviewing all the published papers on randomized controlled studies on the effectiveness of zinc for reducing or preventing depressive symptoms found that zinc lowered patients' depressive symptom scores.

Another mineral that is important to mood is magnesium. Of all the minerals needed for human health, magnesium is the one most likely to be lacking. A magnesium shortage can trigger a host of problems with mental and physical health, including depression, insomnia, irritability, nervousness and anxiety, apathy, and migraine headaches.

Case studies have shown that giving patients 125–300 mg of magnesium per meal and at bedtime can lead to rapid recovery from major depression. In my own practice, magnesium has been invaluable in relieving the insomnia and anxiety often linked to depression.

A great deal of research has clearly shown that a lack of zinc, magnesium, and other minerals can cause or worsen depression and that many people with different forms of depression don't have enough of these minerals.

Lithium is a naturally occurring mineral that is essential to human health. The most common uses involve high pharmaceutical doses for bipolar disorder, although nutritional lithium can also provide effective treatment for depression without medications.

Chapter 11 looks at the problem of mineral shortage among depressed people, explains why these nutrients are vital for mental health, and describes how they can be used either to reduce depressive symptoms or to “supercharge” standard therapy.

### ***E—Essential fatty acids and cholesterol***

An imbalance in the right kind of fat can also be involved in depression.

The brain is a fatty organ that cannot function without large amounts of essential fatty acids (EFAs), as well as cholesterol and other members of the fat family. Indeed, 60 percent of the brain's dry weight is fat, and at least 25 percent of its white matter consists of phospholipids from EFAs.

EFAs support the actions of neurotransmitters, and a great deal of research has shown that they play a key role in depression. For example,

- In one study, treatment with 6.6 grams (g) per day of the EFA eicosa-pentaenoic acid (EPA) and docosahexaenoic acid (DHA) for eight weeks led to much improved Hamilton scores.
- A study of children aged six to twelve showed that EPA and DHA supplementation much improved symptoms of major depressive disorder.
- Research revealed that the lower the EPA, the greater the risk of depression. Likewise, the higher the EPA, the lower the risk of depression.
- Other research found that low levels of DHA in the blood and skewed ratios of omega-6 to omega-3 fatty acids predicted suicide risk.

In one study, treatment with omega-3s was shown to be effective in subjects with major depressive disorder and in patients with depressive symptoms but no diagnosis of major depressive disorder.

Cholesterol is also needed for good mental health. Lower levels of cholesterol in the blood are linked to a higher risk of major depressive disorder, hospitalization, and suicide. A study published in the *Journal of Psychiatric Research* found that depressed men with low total cholesterol levels (less than 165 mg per deciliter [dL]) were *seven times more likely to die early* from unnatural causes such as suicide and accidents.

The link between cholesterol and depression involves the neurotransmitter serotonin:

- Low cholesterol decreases the number of serotonin receptors in the brain.
- Decreasing the number of serotonin receptors may lead to decreases in serotonin levels.
- Low serotonin is linked to an increased level of aggressive impulses.

Simply checking the levels of EFAs, cholesterol, and other fats in all depressed patients may help identify many who will benefit greatly from simple dietary changes or supplements.

Chapter 12, which looks at the relationship between depression and EFAs, cholesterol, and other fats, explains why so many Americans lack key fats and shows how to prevent depression by making sure you get enough of these substances.

### ***E—Exercise and energy***

When you're depressed, the last thing you want to do is huff and puff your way through a run or bounce up and down in an aerobics class. Even doing your favorite sport with your friends doesn't sound like fun. Yet exercise fights depression on many levels by triggering the release of endorphins and other brain chemicals that help lift mood, improving sleep and slowing the release of certain immune system substances that can deepen depression.

A great deal of research has shown that exercise is an effective antidepressant in mild to moderate depression. Psychiatrists tend to underestimate the benefits of exercise and rarely prescribe it. British doctors, on the other hand, can actually prescribe exercise as a treatment for depression, with the National Health Service paying some or all of the cost. But patients find it difficult to overcome their feelings of hopelessness and lack of energy to begin moving again.

Chapter 13 explores the relationship between exercise, energy, and depression and offers a "prescription" for getting more energy and starting an exercise program.

### ***B—B (and other) vitamins***

Many of the B vitamins are very important for both mood and energy:

- B<sub>1</sub> (thiamine)
- B<sub>3</sub> (niacin)
- B<sub>6</sub> (pyridoxine)
- B<sub>9</sub> (folate)
- B<sub>12</sub> (cobalamin)
- Inositol

Of these B vitamins, research has strongly linked folic acid and vitamin B<sub>12</sub> to depression. For example, low levels of folate in the blood have been linked to poor treatment outcomes in patients with major depressive disorder who are taking Prozac, while higher levels of B<sub>12</sub> are linked to recovery.

Many Americans do not get enough B vitamins in their diet. Even if they do, they unknowingly reduce their supplies by eating refined sugar and carbohydrates, which deplete the body of these precious vitamins.

Ample supplies of other vitamins, including vitamin C and vitamin D, are also needed for good mental health. An increasing amount of research is looking at the link between depression and vitamin D, which influences the growth and regulation of every cell in the body. A study of one thousand senior citizens found that those with major depression or dysthymia were more likely to have much lower levels of vitamin D than other senior citizens in the study. An interesting study with healthy volunteers found that giving people vitamin D in the winter, when levels tend to be lower because of a lack of sunlight, increased their “happy feelings” and decreased their “sad feelings.” About 41 to 57 percent of the U.S. population lacks vitamin D, with dark-skinned people particularly at risk because their skin requires more sunlight to make the vitamin.

Chapter 14 is devoted to the B vitamins and other vitamins that play a role in depression. I discuss how they influence mood, what happens when they are in short supply, ways to measure vitamin levels in the body, and how to increase these levels, if necessary.

### ***R—Restore***

For centuries, bacteria and germs were perceived as villains that caused illnesses and disease. Now there is a scientific revolution occurring. The bacteria in our gastrointestinal tract can also affect the way we feel and think. Nourishing a healthy gut flora by containing enough beneficial bacteria, is critical for mental health and well-being.

Microbes are one of the target areas for new therapies in depression. Microbes—bacteria, viruses, and fungi—commonly known as germs, are everywhere. In fact, there are ten times more microbes living in and on us than actual human cells. Nearly 100 trillion bacteria that play a role in health live in the human intestine. Together, the microbes in your entire body make up your microbiome.

Each person’s microbiome is unique and varied; no two individuals share the same microbiome. Microbial genes outnumber human genes 150 to 1, and it appears that we are more bacteria than we are human.

The microbiome is often called our second brain because the gastrointestinal tract contains the same kind of neurotransmitters that are found in the brain. About 95 percent of the “feel good” neurotransmitter serotonin can be found in our intestines, which may explain why you get

a bad feeling in your stomach when you are anxious or afraid. Changes in the microbiome can influence your feelings and behavior.

Several studies show that probiotics, or “good” bacteria, can be useful in the treatment of certain kinds of depression. Chapter 15 reviews all the emerging evidence on how certain strains of bacteria are able to restore bacterial balance in the stomach, which can help improve depressive symptoms.

### ***A—Amino acids and proteins***

A lack of protein is not usually thought to cause depression, but a lack of the amino acids that make up protein can contribute to emotional distress. Different amino acids are needed to make all major neurotransmitters, which in turn affect every part of one’s emotional health, including thoughts, feelings, and behaviors.

We tend to think that, because we eat plenty of protein, we should have all the amino acids we need. However, eating a lot of carbohydrates has led to a steady decline in the percentage of protein in the diet. In addition, the increasing use of antacids interferes with the body’s production of the hydrochloric acid (HCl) and pepsin needed to digest protein. We tend to worry these days that we eat too much protein, but for some people, the real issue is that they are not eating or absorbing the amino acids needed for good physical and mental health.

Chapter 16 looks at the protein–depression link and explains how to tell if protein intake is lacking, what happens as a result, and what to do about it. It also explains the best time of day to eat protein and why.

## **Does THE ZEEBRA Approach Work?**

THE ZEEBRA is a commonsense approach. Although it may seem very different from many psychiatry practices. The brain and body are viewed as a whole, as we also include the effects of nutrition, disease, and other bodily influences on mental health. At last we have an objective and truly balanced approach to finding relief from depression.