Part I

AMINO ACIDS AND LOW MOODS

I live on hope and that, I think, do all who come into this world.

—Robert Bridges, Sonnet 63
I can remember how, when I was growing up, my siblings and I would carefully monitor our mother's mood. As soon as we saw her, we would try to read her and then adjust our behavior accordingly; either to have a wonderful time or to lay low and keep out of her way. My mother was intense, powerful and changeable—at times delightful and at other times very difficult.

Having to react to her may have been the beginning of my own focus on moods, but most of us hear about moods all our lives. So and so is in a bad mood or a good mood, a happy mood or a sad mood, a rosy, black or blue mood. In my opinion mood is the most consistent determinant of the quality of our lives. No matter what's going on, we can handle it if our mood is good. Some people seem blessed with a pretty consistent good mood. They remain buoyant and optimistic even in the face of seemingly insurmountable external odds. This explains how a limbless thalidomide baby can grow into an active, swimming, wheelchair-racing, “normal” teenager; or why a fifty-year-old woman fired from her job has been able to use the trouble as an opportunity to find a rewarding new career. People like these seem to have the indwelling presence of an optimistic and positive mood.

Conversely, there are those who externally seem to have all that life can offer, yet are pessimistic and filled with worry most of the time. They endure a miserable life, so depressed, anxious and angry that they are blinded to the good in and around them. Such people use the trials of life not as learning experiences but as fuel to create even greater pain. They don't seem to have the wherewithal for emotional, physical and spiritual growth. It is my belief, and the thesis of this book, that what they lack are certain simple nutrients, substances I (and other physicians) have recommended for many years. They have been helpful to people who have severe depression, to those with occasional mood swings, and to those who are temporarily facing very difficult life situations.

In essence, what I hope this book will do is lead you to a safe, healthy method for promoting mood control and thus enriching and empowering your life.
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Hello, Dr. Slagle."

The woman's voice on the telephone is tense, determined, resigned. "I'm tired of fighting. Tired of trying to make life work when it never does anyway. I'm in my apartment; all the windows are closed and the gas has been on for a while. I just wanted to say goodbye to you. I don't want you to be upset. Everyone has tried very hard to help me, but I'm too tired to care anymore."

This same woman had twice tried to kill herself before we ever met. She had once slashed her wrists severely, not feeling the slightest pain, and had almost bled to death on the lawn of the prestigious university where she was a straight "A" student.

She had only recently become my patient and still felt too hopeless and despairing to cooperate with the treatment program. Fortunately, I was able to contact her mother and the police on that potentially fatal night, and they rushed her to the hospital in time to save her. Still more fortunately, she became a willing patient over the next several months.

A year and a half after that phone call, this witty, beautiful young woman visited my office, beaming with pride. She had come to introduce me to her new
baby daughter. I can't express what that visit meant to me. I can tell you, though, that she is one of many patients who have been treated successfully with a nutritional approach for alleviating depression and low moods. This method has proven to be 70 to 80 percent effective during the nine years I've been prescribing it in my practice, both for patients in real trouble as this woman was and for those with temporary mood swings.

Luckily most people only experience brief mood swings that may be annoying but are not overwhelming. For such people this program can be almost 100 percent effective. It can also help on those crucial days we all face, when we want to perform optimally and not be at the mercy of a "down" period. A striking example of this situation is that of an attorney who came to my office with the complaint that she never knew how to arrange her court schedule because her performance was so influenced by her moods. She was not consistently down, but some mornings she woke up feeling "off," vague and slightly fuzzy-headed. On other days she was a dynamo charged with energy and focused intensity. On the good days she was a star performer, on the bad days she struck out. Once this lawyer was able to gain biochemical control of her moods by taking the proper nutrients, she was able to score consistently and to create an important position for herself.

Even though the majority of us only experience occasional blue days or low periods, it's important to understand how bad depression can be and to know how to avoid it. The sad fact is that, unfortunately, most of us will, at some time, have to deal with other depressed people even if we ourselves do not succumb.

When low feelings come and go, the periods of relief can bring a much needed respite, and allow the person to continue functioning normally in society. But when depression is continuous and severe, it can squeeze every last drop of color and vitality out of life, pressing relentlessly down on its victim until despair alone survives. There is then no need to think or worry about punishment in the hereafter. The torture is here and now. John Milton must have known something about this state when he penned those famous lines in Paradise Lost:

The mind is its own place, and in itself
Can make a Heav'n of Hell, or a Hell of Heav'n.

With severe depression, the world is colored black and blue. There are psychological, spiritual and physical bruises. The pervasive pain can seep into every compartment of life. No matter what the religious beliefs, faith and hope are lost, there is little or no ability to feel enjoyment, the ability to give and receive love fades or entirely disappears, and guilt and anguish set in. Only someone who has suffered from this illness can understand the utter devastation it can inflict.

The mental pain of depression is sometimes so great it erases physical pain. I remember being called upon to treat a depressed woman who had slashed both wrists, both sides of her neck and both ankles, and had stabbed herself in the liver, and lived through it feeling no physical pain. The degree of desperation involved in such self-attack was difficult to comprehend. It was as if she had entered a "trance-like" or altered state of consciousness without the aid of drugs or alcohol to dull the feelings.

Incidents like this left their mark on me. I was in my psychiatry residency at the time. Young. Impressionable. Most doctors can tell you the training years at major university hospitals are the times when they
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see the most exotic, extreme and various kinds of illnesses. They are confronted with the most difficult when they are the least experienced. My training was no exception. I was assigned a variety of fascinating but hard-to-treat patients, and I learned a lot—fast!

During this same intensely difficult first year of psychiatry residency, something else happened that stunned all of us with the profound suffering in depression. One of my co-residents was particularly brilliant, an exceedingly hard worker, who gave his patients considerable attention. The brightest of us paled in comparison to him in his thoroughness and attention to detail. He was handsome and, by all outward appearances, had his life together.

One Monday morning the director of the residency program called us for a special meeting. There was no way he could have prepared us for the news that this brilliant young man had been found dead in a motel room over the weekend. He had left a suicide note, and had died from an overdose of sleeping pills.

Many years have passed and though I still believe depression is hell, I now know it is not eternal and everlasting, as some feel.

On the contrary, I know that depression is treatable and temporary. I know it professionally, through my practice. And I know it personally.

**My Own Story**

I suffered from intermittent but intense depression from the ages of fifteen to thirty-five. Though I always functioned, depression colored my attitude and thoughts, and caused me unnecessary suffering for nearly twenty years.

As a teenager, I came very close to taking an aspirin overdose. Usually, aspirin isn’t fatal. Fortunately, many suicide attempts made by the young are unsuccessful because young people lack the knowledge of what kills.

One part of the residency in psychiatry requires that the young doctor undergo a personal psychoanalysis, as well as sampling various other kinds of therapy. Five years of psychoanalysis three to five times a week, and seventeen thousand dollars later, I was still running into those same moments of intense depression. Also, I sampled many other forms of therapy: individual Gestalt, Reichian, Jungian, reality and behavior therapy as well as encounter, sensitivity and Tavistock group therapy. Through it all my insight, awareness and coping mechanisms increased, but the depression was still there. I was especially worried because depression surrounds my profession. The suicide rates of doctors and dentists are higher than any other profession, and those of female physicians are higher than of male physicians.

Just as psychoanalysis wasn’t the answer for me, neither were drugs. My depression was not constant enough to make me want to experience the side effects of antidepressant medication. But the desperate times continued. I remember some of them very clearly. One time, I was sitting on the edge of a cliff at Sea Ranch, California, looking down a few hundred feet to where the blue light of the full moon shimmered and danced on the restless sea. It was so inviting and I wanted very much to jump, to end it all. And on another occasion, while sitting on the warm sand at twilight, watching the endless waves curl into the earth, I wanted to walk slowly out to sea, never to return.

There were no psychological precipitants for such feelings, so I began to wonder if my depression had more to do with the state of my body chemistry than with my mental attitude. I noticed that the time of day
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had something to do with my moods. Whenever I awakened at three or four in the morning, I felt horrible, in complete despair. When I went back to sleep and awakened later in the morning, I would often feel fine.

Food seemed to be connected, too, as I would feel much worse after eating certain foods. I began to look for some kind of biochemical way to change my feelings and was rewarded in my search by learning about specific nutrient substances that could directly influence certain mood-elevating brain chemicals. From then on, I applied to myself the kind of nutritional treatment I’m now recommending in this book. Almost unbelievably, it worked, and the day came when I knew I would never again feel so much pain as to want to die. That was ten years ago and I have been depression-free since that time.

It rarely happens any more these days, but if I ever awaken in the morning feeling slightly low, I take several tyrosine capsules and put a few sublingual vitamin B\textsubscript{12}’s under my tongue. Within an hour my mood and outlook will have completely improved. I don’t have to waste unnecessary time and energy on an unwanted, unneeded state of being, and I experience no side effects whatsoever.

**The Promise**

This book offers you the same proven, safe method of treating depression and temporary low moods that has worked so well with me and with many of my patients. It is a completely natural, scientifically based approach backed up by some impressive research. It makes sound, theoretical sense. An increasing number of doctors are using it, with dramatic results.

By reading this book, you can discover whether you are in fact depressed. If you are, you will discover some of the answers you’ve been seeking. You will learn what to do to free yourself from this burden—one that may very well be the result of a simple nutritional imbalance in the first place!

For the depressed person, the light at the end of the tunnel isn’t an oncoming train: it is daylight, because there is hope. The right treatment for you exists. Medical science already has a variety of possible approaches and the revolutionary nutritional procedures described in this book may well prove to be the safest and most effective of them all.

What you can learn in *The Way Up From Down* will allow you to take control of your own moods by making sure your brain has enough of its essential amino acid nutrients. If you try to confront life’s problems while your chemistry is off, you are already at a disadvantage because you will perceive everything as harder and more complicated than it is.

Once you achieve the proper chemical balance in your brain, your whole outlook will change. You will no longer feel stuck, you will be better able to cope with your problems, and you will perhaps have the strength to work with and resolve seemingly impossible situations. You will also have more physical and psychological energy and endurance.

Even if you are not actually depressed, this book will help you deal with your psychological processes and mood swings as you react to different life events. All of us are especially stressed when faced with disappointments, loss and grief. This program will fortify you by promoting “optimum” brain chemistry and decreasing the negative impact of stress reactions.
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THE GUILT HOOK

Who wants to deal with depression if he can avoid it? If you haven’t experienced it, it’s very hard to understand what it’s like to feel out of control of one’s mood and thoughts and persistently able to perceive only the darker side of life. Such pessimism, gloom and immobility seem a perverse quirk that can easily be corrected, if one “really” tried to rise above it. A great impatience develops in the “up” ones who don’t want to be bothered by this aspect of life—unless someone near becomes afflicted. When this happens, it is usually experienced as *self-inflicted* by both the sufferer and observers alike.

In my experience depressed people and their families have great difficulty accepting the biochemical origins of low moods. They doubt mood disorders can be successfully treated with nutrition or medications. They think depression is only a state of mind, and therefore must have a purely psychological cause for which a psychological remedy must be found.

Depressed people feel acute sensations of guilt and remorse. These symptoms—for they should be considered symptoms—actually encourage the victims to blame themselves for their condition. Somehow, the idea that depression might have a biochemical cause looks as if it’s going to let the patient off some kind of hook—the guilt hook, the hook of despair and self-accusation. A depressed person is not at all sure that she should be allowed to get off that hook.

The family of the depressive, too, is liable, inadvertently, to encourage the patient in this way of thinking. Family members often tell their depressed relatives they’d feel better if they “only took a more positive attitude,” or “looked on the bright side,” or “would only stop thinking about themselves and quit complaining.” “Just look at all you have to be grateful for.” The depressed person cannot comprehend this. “How can I feel thankful and grateful when everything is wrong?”

When you pressure a depressed person to think positively, it’s almost as if you’re insisting he speak to you in Latin, and he becomes even more guilt-ridden and helpless. “I can’t think any of the positive thoughts other people are talking about. Something terrible is wrong with me. I am bad. I am hopeless.” And the cycle continues.

Who wants to be around someone like this? Since family members cannot very well avoid contact, relationships can deteriorate from the strain. Impatience, anger and alienation may set in. Marriages may be ruined. Parent-child relationships are disrupted. Friendships are dropped. And the guilt hook digs deeper.

All of us need to understand the true nature and causes of depression in order to minimize or even to eliminate the suffering it can produce. It’s all well and good to say depression does have a psychological side, that it is related to attitude and will. Certainly, attitude and will have their parts to play, as we shall see in the chapters on the psychological aspects of depression and the power of expectations. But, believe me, I’m a psychiatrist, and I’m telling you that psychology is only part of the question—and it’s the second part!

What we are discovering is that depression is caused by biochemical imbalances which in turn create both psychological and physical symptoms.

YOUR MIND IN THE HEALING OF DEPRESSION

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Your Mind in the Healing of Depression

What part does your mind have to play in all of this? After all, depression does have a major effect on
the way you think and feel about life. And your thoughts and feelings seem to have some very important connection with your becoming depressed in the first place.

Even if depression does contain a biochemical component, what about thoughts and feelings? Do they play a part in creating depression? Have they any part to play in healing?

When you are thinking pleasant thoughts, even when you are daydreaming, the chemistry of your brain is likely to be in balance, and nothing needs to be done about it. But there are other patterns of thought that we all sometimes slip into, which directly tie in with depression. We need to be aware of them, in order to do something about them.

All of us occasionally have thoughts we don’t like or want. For some of us, these thoughts occupy our minds much of the time. It’s simply no fun to be worrying about questions like, “Do I have cancer?” “Will my home be robbed while I’m away on vacation?” or “Will we have enough money to pay the bills?”

Thoughts like these become more than mere concerns when they repeat themselves over and over to the point of being worriesome or becoming obsessions.

When there is constructive action you can take, take it. If you are worried you might have cancer, for instance, you need to ask yourself whether you’ve noticed any change in your health, and if so, go to your doctor to have the appropriate checkup. There are a number of routine exams for cancer, chest X rays, rectal exams, PAP smears, breast exams and so on. Do what needs to be done, and if you still can’t release the thought, face up to it as a possible sign of depression.

Once a thought becomes obsessive, once the mind starts running away, it becomes more and more difficult to control. The thoughts are like a rudderless ship in a storm, tossed about with no pattern or direction, creating feelings of helplessness, panic or worse. When you lose your ability to focus and concentrate, any kind of self-directed thinking is almost absent, or even impossible.

We need to be able to control our thoughts. I don’t mean that we should avoid ever entertaining a passing worry, nor that we should be so controlled that we never daydream or allow our thoughts to wander. But it is important to be able to dismiss worries from our minds when there is nothing we can do about them, before they destroy our peace, our mood and even our lives.

It’s difficult to appreciate that unbalanced brain chemistry may be making it far harder for you to direct your own thoughts. When your brain chemistry is right, your thoughts will automatically be more positive and balanced, and easier to direct. If you are going through a hard time, or have been around others who are pessimistic, you still may need to work to steer your thoughts in a positive, creative, stress-free direction. But when you make this effort, you will be able to think more positively. In time, you can literally retrain your thought patterns.

So the mind does have an important part to play in all of this. Yet, if you are already depressed, getting your brain chemistry back in balance is the first step. Steering your thoughts in a positive creative direction will become much more manageable once that first task has been accomplished.

THE NUTRITIONAL APPROACH

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Once a thought becomes obsessive, once the mind starts running away, it becomes more and more difficult to control. The thoughts are like a rudderless ship in a storm, tossed about with no pattern or direction, creating feelings of helplessness, panic or worse. When you lose your ability to focus and concentrate, any kind of self-directed thinking is almost absent, or even impossible.

We need to be able to control our thoughts. I don’t mean that we should avoid ever entertaining a passing worry, nor that we should be so controlled that we never daydream or allow our thoughts to wander. But it is important to be able to dismiss worries from our minds when there is nothing we can do about them, before they destroy our peace, our mood and even our lives.

It’s difficult to appreciate that unbalanced brain chemistry may be making it far harder for you to direct your own thoughts. When your brain chemistry is right, your thoughts will automatically be more positive and balanced, and easier to direct. If you are going through a hard time, or have been around others who are pessimistic, you still may need to work to steer your thoughts in a positive, creative, stress-free direction. But when you make this effort, you will be able to think more positively. In time, you can literally retrain your thought patterns.

So the mind does have an important part to play in all of this. Yet, if you are already depressed, getting your brain chemistry back in balance is the first step. Steering your thoughts in a positive creative direction will become much more manageable once that first task has been accomplished.

**The Nutritional Approach**

What does the nutritional approach to depression really mean? What is it all about? Let’s look at the
idea briefly, before going into more depth in the coming chapters.

Medical science now understands a great deal about the specific chemicals that exist in our brains. In particular, certain chemicals known as the brain amines seem to be directly connected with the way we feel about life. We have discovered that people who suffer from depression often have an insufficient amount of these amines in their brains.

The nutritional approach to depression proposes that if the brain's balance of these chemicals can be restored, the depression itself is likely to lift. If you are not enjoying life, a simple chemical imbalance may be largely responsible for causing your suffering.

Fortunately, the brain chemicals in question can be created by increasing the amount of certain nutrients—vitamins, minerals and amino acids—in your diet. These nutrients, readily available in any good health food store or pharmacy, really can lift depression.

This book will teach you about the nutritional approach and give you enough information either to try it for yourself or, if you have severe depression, to work on this approach in conjunction with your own doctor.

The comprehensive chemistry and psychology of depression is beyond the scope of this book. What we are presenting is the basic biochemical theory of depression, which in turn underlies this new and effective alternative therapeutic program.

**AN IMPORTANT WARNING**

The nutritional approach discussed in this book is not a replacement for consulting with your own personal physician, nor is it intended to replace any psychotherapy you may currently be engaged in. If you are severely depressed, or are seriously considering suicide, you should certainly be under the care of a psychiatrist, and perhaps should even be hospitalized.

Regardless of whether your depression is mild and occasional or persistent and severe, however, you can try this nutritional approach. It is so new that your doctor may not be familiar with this type of treatment and therefore may not even encourage it at first.

If you are under a doctor's care, I would suggest you show your physician the paragraphs that follow, and indicate that you would like to try this approach.

**A WORD TO MY COLLEAGUES**

The nutritional approach to the treatment of depression that I am recommending in this book has been used safely and successfully by myself and by many other physicians for several years with predominantly favorable results. An explanation of the brain amine theory on which this treatment modality is based is found in Chapter 3, and my recommendations regarding which depressions qualify for this modality are to be found in Chapters Four and Six.

Just as some depressions will not respond to such orthodox psychiatric treatments as the use of antidepressants, psychotherapy or electroshock treatment, some depressions may not respond to this approach. The range of causes involved in the initiation and continuation of depression is extensive; depressions may exist that in no way relate to the biochemical imbalances mentioned in this book. In cases where the nutritional supplements suggested
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have little or no impact within a month, I recommend a more intensive examination of such contributing factors as thyroid disease, sugar, caffeine and alcohol abuse, possible allergies, etc.

I myself have been surprised and gratified to observe the effectiveness of this approach with patients who have been unsuccessfully treated with other therapeutic modalities. I would urge my medical colleagues to try this approach initially with a sufficient number of patients to provide a first-order impression of its potential. Besides clinical impressions, you may want to substantiate and monitor the effectiveness of the therapy through amino acid analysis (ion exchange chromatography). My own and my colleagues' findings suggest that above 70 percent of patients respond favorably to this therapy, and can therefore in most cases be spared the potential side effects of antidepressants.

As Michael Oliver suggested recently in The New England Journal of Medicine, "The risks involved in correcting risk must be compared with the risk of the disease in question." Non-invasive, nutritional approaches are, I suggest, to be preferred to equivalent pharmacological approaches where possible.

I trust that this book will be of service in introducing this treatment possibility to my fellow physicians and to the wider lay public that is now beginning to recognize the importance of the patient's role in recovery. For your convenience, I have included at the end of the book an extensive bibliography of relevant publications.
Are you depressed? If you answer with a clear yes, you are closer to finding relief than the many who are depressed and don’t even know it. It’s sad but true that even those seeking psychiatric help can be totally unaware of the depression which underlies their symptoms.

For example, a twenty-seven-year-old man told me, “I just can’t get going in the morning and there’s not much to do when I get up anyway.” When I suggested he sounded depressed, he vehemently denied it and presented many reasons for his apathy. “I’m just upset because I don’t like where I’m living, but I don’t have a job, so I can’t do anything about it. I’m not looking for a job because I’m waiting to settle a workman’s comp case, and besides, I don’t know what I want to do.” He was surprised when his responses to a questionnaire I gave him indicated the presence of moderate depression. With further interviewing that very day, he was able to recognize and acknowledge the source of his complaints.
Depression Is Not All in Our Minds

Most of us think that to qualify as "depressed" our symptoms have to be severe: extreme pessimism, sadness and negativity, with a low mood and outlook. Yet depression can exist without the presence of these elements. Some symptoms may be so subtle that we're not even aware of them individually. Put enough of these symptoms together, and the result is a mystifying "change in mood." That change can be persistent and take over your life or it can come and go, giving you "up" days and "down" ones.

Sometimes we don't recognize depression because it comes disguised as physical illness. People complain of backaches, headaches, muscle tension, constipation, fatigue, weight changes or sleep problems, and they naturally go to their family doctor, who may or may not be trained in recognizing the subtler symptoms of low mood and depression. Two different studies have found that only a third of patients later diagnosed as depressed initially sought attention from a mental health professional.

The evidence tells us that depression is a physical disorder. Even though there may be accompanying psychological symptoms, we are finding that depression is first and foremost associated with changes in brain chemistry, and that these changes can cause other physical alterations in the body as well. Still, to be properly treated, the specific psychiatric diagnosis of depression must be made.

Diagnosis May Be Elusive

It is difficult even for the most skilled professionals and psychiatrists to identify certain kinds of low mood or depression. Though it is the most common disorder seen in non-psychiatric medical practices—one in five of us will experience this illness at some time in our lives—half of all depressions are undiagnosed and untreated. Just look at the list of obstacles in the way of a clear diagnosis.

1. Depression is often veiled by physical complaints and confused with physical illnesses.
2. It may be "masked" by or coexist with other illnesses. For example, a person with heart disease may also be suffering from a separate biochemical depression.
3. Despite overwhelming evidence to the contrary, many people still consider it a purely psychological disorder. They think the depressed person with heart disease is "only" having an emotional response to his medical illness.
4. There is a stigma to the admission of depression.
5. It may be hidden by other psychological problems. For instance, those with schizophrenia may also have a depression; those with eating disorders may be preoccupied by their binging and fasting behaviors and ignore their depression.
6. It can be confused with grieving or reactions to other stressful life events. We blame our depressed feelings on the severity of what is happening and fail to recognize when our reactions have progressed beyond what could be called "normal."
7. It's such a "personalized" illness. There is a tremendous range of symptoms and severity in the way depression manifests itself in each of us.

Most people in whom depression is eventually diagnosed have visited their doctor several times within that year. If you have been seen by your physician and are experiencing no improvement in your symptoms, at least consider the possibility of an associated low mood or depression. Generally, it is best
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to obtain at least two separate opinions when you aren't making any progress or when you are trying to decide whether or not to undertake any major treatment such as surgery or a potentially harmful medication.

Don't be afraid to search out other opinions when your doctor isn't helping you or isn't sure about your diagnosis or treatment, or when you yourself just aren't sure what's happening or what your doctor is telling you. It's amazing to me how afraid people are to question their doctors. Remember, a good doctor will welcome questions, will be receptive to other opinions, and will want you to be as educated as possible about your health. If this is not the case with your physician, you might consider a replacement.

When physicians miss the diagnosis of depression, they either aren't thinking in these terms or they explore only superficially, to the extent of asking the patient, "Are you depressed? Do you feel sad and blue?" If the answer is "no," the doctor often accepts that, with the result of further delaying the proper recognition and treatment.

Often when there are obvious emotional symptoms they are only viewed as anxiety or insomnia. Such patients are then inappropriately given tranquilizers such as Valium, Librium, Serax, Centrax or sleeping pills. One study revealed that 82 percent of those who killed themselves had seen their physician within one month of their death and 55 percent died of an overdose of tranquilizing and sleep medication supplied by that doctor. It's my belief that doctors would be wise to clearly consider depression in all those with sleeping problems or anxiety and to treat them more appropriately for their depression.

**Family History**

In obtaining a family history, I generally want to know the medical and emotional backgrounds of parents, grandparents, aunts, uncles and siblings. Is there any history of suicide, depression, anxiety, psychiatric treatment, eating disorders, alcoholism or drug abuse?

If so, this raises the index of suspicion for depression. Are the relatives living or dead? How have they spent their lives? What are their attitudes and activities? What is their general health and history of medical treatment? What is the level of their vocational and interpersonal functioning?

This exploration can yield valuable material when the patient knows the information. But correct and complete family history is not always easy to obtain. Family members may have been depressed but not identified as such, so no one ever knew. Sometimes when I ask my depressed patients if anyone in their family was depressed, they say no. Then when I ask the specific questions listed above, a clear picture of depression emerges. Having denied that her mother was depressed, one patient went on to say, "My mother stayed home most of the time and didn't have many friends. She didn't like us to go out very much either, because she was afraid something would happen to us. She was always worrying."

**Physical Pain**

A woman came to me with long-standing abdominal and back pain. She was afraid she was dying of cancer and kept saying, "Doctor, tell me the truth, you know something terrible is wrong with me." Though she had been to numerous specialists and
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Many people are more comfortable focusing on their bodies than on their emotions or on psychological symptoms. For them physical pain is more understandable and therefore more acceptable than psychological pain. They go to a disastrous business meeting and feel its effects as a headache. They call chronic digestive problems “a food allergy” to avoid dealing with the emotional basis. They tend to engage in a process known as somatizing, converting mental states into bodily symptoms. For this and also for biochemical reasons, depression can create chronic physical pain. In certain ways, such people may be fortunate compared to those with extreme forms of mood pain. You can only make a comparison if you have fully experienced both.

Dr. Humphrey Osmond studied thirty patients hospitalized for depression. Each had also previously experienced severe physical pain from illness, injury or surgery. When they were asked to compare the mood pain with the physical pain, all but one “preferred” physical pain—and the one exception said he “didn’t know.”

There is, in fact, such an overlap between the two that many chronic pain clinics now routinely evaluate patients for depression. Often, treating such people for depression decreases or eliminates the chronic physical pain they have suffered for years.

NOTE: Traditional medical exploration must be undertaken to rule out other causes for pain before assuming chronic pain is created by depression.

Often the diagnosis is complicated by the coexistence of depression with other mental or physical disorders such as high blood pressure, ulcers, cancer, parkinsonism, alcoholism and so on. Doctors and patients may feel they have the answers when they have arrived at one or two diagnoses and stop looking for what else may be wrong.

STILL A STIGMA

Many people still feel there is a social stigma attached to the symptoms or diagnosis of depression. One of my patients was a very successful film celebrity who suffered for many years from such severe depression that she attempted suicide six times. Her last sleeping pill overdose resulted in three days of unconsciousness and ten days in a hospital intensive care unit. When she recovered from this nearly fatal attempt, she was placed in a psychiatric hospital and there first became my patient. We went on to work together very closely and successfully.

Several years later, she wrote her biography. The fascinating thing to me was that there was not a single mention in the book of her difficulty with depression or of her suicide attempts! Shame and guilt obviously kept her from sharing this information though it might have made a human and interesting story and helped others to acknowledge depression in themselves.

Usually, we hear about depression in well-known people only when it results in the tragic end of suicide under circumstances difficult to keep secret. I have seen in my practice that there are many more sui-
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In our current culture, it seems easier to admit a problem with drinking than a problem with depression. Witness the alcoholism declarations of Betty Ford, Dick Van Dyke, Mary Tyler Moore, Liza Minnelli, Richard Burton, Elizabeth Taylor and so on. Their honesty has been an inspiration to drinkers and has, no doubt, helped others to obtain necessary treatment. If only depression would find its way into the celebrity spotlight!

**Symptoms**

Generally speaking, if your blue days come and go with one or two accompanying symptoms, you are suffering from only brief low moods. If the symptoms multiply, or if they come and go often enough to cause you significant pain or to interfere with your fully partaking of life’s pleasures and bounties, you may be undergoing a sustained mood change. If you have a combination of at least four of the following symptoms, which have lasted for two or more weeks, you may be suffering from the illness of depression.

The symptoms are:

**Fatigue**

You may have a general loss of energy, may tire easily and lack ambition for getting things done.

**Insomnia—or the Reverse, Excessive Sleep**

If you have an anxious type of depression, you may have trouble falling asleep, or have a very restless sleep with frequent awakening. If you are more severely depressed, you may awaken very early in the morning, around two or three o’clock, feeling even worse at that time, fearful, dreading, unable to return to sleep at all. Less usually, and often with milder depressions, you may sleep much more than before—almost as an escape from life.

**Indecision**

You may be stressed and unable to make decisions, ranging from important to even the most simple matters.

**Loss of Sexual Desire**

There may be a reduction in sexual activity or total lack of interest and loss of sex drive.

**Changes in Eating Patterns**

You may have lost your appetite or may be eating excessively. This may be accompanied by an associated weight loss or gain. Generally, more severe depressions are accompanied by weight loss.

**Anxiety**

You may have generalized anxiety which comes and goes for no apparent reason. You may have restless, agitated feelings. You may have specific panic attacks. About 70 percent of persons with panic disorder, agoraphobia or severe anxiety have an associated depression.

**Phobias**

The anxiety may show itself in the form of a phobia—such as fear of going out of the house, fear
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of elevators, fear of cancer, fear of germs and so forth.

Guilt
You may have feelings of remorse and shame over real or imagined events. You may feel you shouldn't have done what you did and should have done what you didn't. You may feel guilty about not loving or functioning the way you used to.

Hopelessness
You may feel you are incurable, that there is nothing that can be done for you.

Helplessness
You may feel unusually dependent and unable to do much for yourself or to take care of yourself.

General Loss of Interest
You may take little pleasure in anything. You may be indifferent to family, friends, job, hobbies and other things previously important to you.

Irritability
You may be annoyed, impatient, jumpy, excessively angry or hostile about all sorts of trivial things. You may have the upsetting urge to harm those who are near and dear to you.

Social Withdrawal
You may avoid interacting with others and prefer to be alone more than usual.

Physical Changes
There may be almost any physical symptoms including constipation, nausea, chest pains, stomach cramps, rapid breathing, sweating, coldness, numb

ness or tingling of the hands or feet, headache or feelings of pressure in the head, ears and neck. Often, the depressed person interprets such symptoms as deriving from some terrible disease that is destroying the body.

Suicidal Thoughts
This may range from wishing you were dead to actively planning suicide.

Delusions or Hallucinations
The most severe depressions may progress to what represents a partial break with reality. This is when the biochemistry is most disturbed and the person may believe thoughts that absolutely are not true (delusions) or see or hear things that are nonexistent (hallucinations).

HOW TO DIAGNOSE

Even with such a list of symptoms, depression can be hard to pinpoint. Women can go to the gynecologist and have a pelvic exam and PAP smear to check for cancer; you can have checkups for blood pressure or eye examinations for glaucoma. There is no single test, as yet, that will predictably diagnose depression.

A number of physical tests have been devised to shed some light on depression. A few psychological questionnaires are also quite accurate in determining the severity of depression. The test presented in this book is called the Carroll Rating Scale. It is an adaptation of the Hamilton Rating Scale for Depression, modified so that you can rate yourself rather than be rated by professionals. The Hamilton was devised in 1960 and is the test
of elevators, fear of cancer, fear of germs and so forth.

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You may be annoyed, impatient, jumpy, excessively angry or hostile about all sorts of trivial things. You may have the upsetting urge to harm those who are near and dear to you.

Social Withdrawal
You may avoid interacting with others and prefer to be alone more than usual.

Physical Changes
There may be almost any physical symptoms including constipation, nausea, chest pains, stomach cramps, rapid breathing, sweating, coldness, numbness or tingling of the hands or feet, headache or feelings of pressure in the head, ears and neck. Often, the depressed person interprets such symptoms as deriving from some terrible disease that is destroying the body.

Suicidal Thoughts
This may range from wishing you were dead to actively planning suicide.

Delusions or Hallucinations
The most severe depressions may progress to what represents a partial break with reality. This is when the biochemistry is most disturbed and the person may believe thoughts that absolutely are not true (delusions) or see or hear things that are nonexistent (hallucinations).

HOW TO DIAGNOSE
Even with such a list of symptoms, depression can be hard to pinpoint. Women can go to the gynecologist and have a pelvic exam and PAP smear to check for cancer; you can have checkups for blood pressure or eye examinations for glaucoma. There is no single test, as yet, that will predictably diagnose depression.

A number of physical tests have been devised to shed some light on depression. A few psychological questionnaires are also quite accurate in determining the severity of depression. The test presented in this book is called the Carroll Rating Scale. It is an adaptation of the Hamilton Rating Scale for Depression, modified so that you can rate yourself rather than be rated by professionals. The Hamilton was devised in 1960 and is the test
most often mentioned in psychiatric literature.

Naturally it is difficult to be 100 percent accurate without being interviewed by skilled professionals. A self-rating scale is good for general screening but should not by itself indicate an absolute diagnosis of depression because, naturally, there is a chance of denial, loss of insight, or exaggeration of symptoms. But this scale will give you an idea of where you stand.* If you think you are depressed and also test as depressed, you very likely are. If you think you are not depressed, but you test as depressed, obtain a professional opinion. If you score as not depressed but still think you might be, you’d be well-advised to seek further skilled evaluation. You might also re-administer the test periodically, especially to rate yourself as you progress with the self-help program in this book. (It might be helpful to write your answers on a separate piece of paper, so you can retake the test from a clean copy.)

CARROLL RATING SCALE

Complete all the following statements by circling YES or NO, based on how you have felt during the past few days.

1. I feel just as energetic as always
2. I am losing weight
3. I have dropped many of my interests and activities

*Psychiatrists have placed people with depressive symptoms into different diagnostic categories, depending upon the severity, duration and so on. Differentiating the proper subtypes can be important, especially in those with manic-depressive illness. They are all described in the Diagnostic and Statistical Manual for Mental Disorders, third edition, and are condensed in the appendix of this book. If you prefer a more technical examination of diagnosis.

THE WAY UP FROM DOWN

4. Since my illness I have completely lost interest in sex
5. I am especially concerned about how my body is functioning
6. It must be obvious that I am disturbed and agitated
7. I am still able to carry on doing the work I am supposed to do
8. I can concentrate easily when reading the papers
9. Getting to sleep takes me more than half an hour
10. I am restless and fidgety
11. I wake up much earlier than I need to in the morning
12. Dying is the best solution for me
13. I have a lot of trouble with dizzy and faint feelings
14. I am being punished for something bad in my past
15. My sexual interest is the same as before I got sick
16. I am miserable or often feel like crying
17. I often wish I were dead
18. I am having trouble with indigestion
19. I wake up often in the middle of the night
20. I feel worthless and ashamed about myself
21. I am so slowed down that I need help with bathing and dressing
22. I take longer than usual to fall asleep at night
23. Much of the time I am very afraid but don’t know the reason
24. Things which I regret about my life are bothering me
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25. I get pleasure and satisfaction from what I do
26. All I need is a good rest to be perfectly well again
27. My sleep is restless and disturbed
28. My mind is as fast and alert as always
29. I feel that life is still worth living
30. My voice is dull and lifeless
31. I feel irritable or jittery
32. I feel in good spirits
33. My heart sometimes beats faster than usual
34. I think my case is hopeless
35. I wake up before my usual time in the morning
36. I still enjoy my meals as much as usual
37. I have to keep pacing around most of the time
38. I am terrified and near panic
39. My body is bad and rotten inside
40. I got sick because of the bad weather we have been having
41. My hands shake so much that people can easily notice
42. I still like to go out and meet people
43. I think I appear calm on the outside
44. I think I am as good a person as anybody else
45. My trouble is the result of some serious internal disease
46. I have been thinking about trying to kill myself
47. I get hardly anything done lately
48. There is only misery in the future for me
49. I worry a lot about my bodily symptoms

The Way Up From Down

50. I have to force myself to eat even a little
51. I am exhausted much of the time
52. I can tell that I have lost a lot of weight

Compare your answers to those listed below and give yourself one point each time your answer is the same. Any score greater than ten reveals some degree of depression, and the severity of the depression increases with the score.


NOTE: If you have a medical disorder causing symptoms like fatigue, decreased sexual activity and other physical changes, then the diagnostic process is more complicated unless you also show a number of non-physical symptoms as well. If you are going through a particularly difficult life situation—the death of someone you're close to, the loss of employment—you may temporarily score higher on the test. However, if the symptoms continue for more than two weeks you should also consider depression.

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1. no 14. yes 27. yes 40. yes
2. yes 15. no 28. no 41. yes
3. yes 16. yes 29. no 42. no
4. yes 17. yes 30. yes 43. no
5. yes 18. yes 31. yes 44. no
6. yes 19. yes 32. no 45. yes
7. no 20. yes 33. yes 46. yes
8. no 21. yes 34. yes 47. yes
9. yes 22. yes 35. yes 48. yes
10. yes 23. yes 36. no 49. yes
11. yes 24. yes 37. yes 50. yes
12. yes 25. no 38. yes 51. yes
13. yes 26. yes 39. yes 52. yes

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WHAT DO I DO WITH WHAT I'VE LEARNED?

If you tested as severely depressed, you need professional help in addition to following the program in this book; please consult a psychiatrist.

If, from taking the test, you have discovered or had confirmed that you are depressed, it's a good idea to read the whole book before you start the treatment procedure. Some other factors may be contributing that must have attention before this program can work optimally.

Be hopeful. There is relief available for depression and you have already taken the first step: self-knowledge and proper identification of your problem can be the best news you've ever had! The nutrient program contained in this book may be exactly what is needed to put you on the road to health.

LOW MOODS WITHOUT DEPRESSION

Where do you fit and what do you do if you don't have the diagnosis of depression, yet you do have low moods? Have you ever known anyone who did not have occasional down days or cycles or low periods during the day? I haven't. We all have brief depressed feelings and such periodic gloom may run the gamut from slight to severe. What differentiates this from the illness of depression is the duration as well as the presence of the accompanying symptoms previously listed. Low moods are somewhat like masturbation, with 99 percent of us sometime or other experiencing this and the other 1 percent lying.

Even if you scored as totally normal on the Carroll Rating Scale, you'll likely have other times when you would not score so well. Low moods constitute those other times when you have some of the symptoms on
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Even if you scored as totally normal on the Carroll Rating Scale, you'll likely have other times when you would not score so well. Low moods constitute those other times when you have some of the symptoms on the list, but they don't last for over two weeks at a time, or they involve fewer than four of the categories of symptoms listed earlier in the chapter. Any mood discomfort is not optimal health, and recurrent symptoms, even if intermittent, need recognition and attention.

Why suffer at all if you don't have to? It's worth trying available methods of relief and enhancing your life with a more consistent sense of well-being. If low moods are a part of your life, you may want to control them with intermittent nutrient use. The treatment described in this book is extremely effective for these temporary times of pessimism and dampened enthusiasm.
3

The Brain Amine Theory of Depression

Bacterial pneumonia and TB used to be major killers until we discovered they were caused by the presence of bacteria which could be eradicated by antibiotics. But not all illnesses have a single cause of this sort and therefore cannot be so successfully controlled or eliminated. The current major causes of death are diseases such as cancer, heart disease, stroke and Alzheimer’s, which simply do not have any single basis of origin. They are multidetermined, with genetic, environmental, dietary, lifestyle and psychological causes all coming into play. Depression is one of these potentially multifactorial illnesses.

Among the causes of depression we do know about, research has shown that imbalances in certain brain chemicals play a critical role. In fact, regardless of the overt triggering factors, the underlying chemical mechanism of depression is almost always a shift in the brain chemistry. This understanding makes depression a treatable illness, though it is best treated in a way that addresses all the contributing factors involved in its development.

History of Depression

Though this understanding of the chemistry of the problem is relatively recent, depression has been with us as long as recorded history. It has afflicted individuals of every rank in society, from King Saul and Alexander the Great to the humblest in their services. Through the ages this darkness of the mood has been variously viewed as caused by evil spirits, disobedience to God, moral failings, divine possession, black bile, anger and grief. Whatever the presumed causes, there were no answers and no predictable methods of cure. The depressed were misunderstood and stigmatized, treated with amulets, spells and bloodletting. The best, kindest treatment available consisted of suggestions to “feel better,” entertainment with “amusing stories and diversion,” and mild reprimanding of the sufferers’ “groundless sorrow.”

More recently, medical and psychiatric science have gone through numerous cycles in their attitudes toward depression. Ironically, in the nineteenth century depression was thought to be caused by imbalances in the body's chemistry and little attention was paid to the idea that psychological factors might be involved.

About the turn of the present century, Freud and Jung suggested that depression should be considered a psychological disease, caused by the activity of a demanding, exacting and punishing conscience. That attitude, for better or worse, dominated professional thought for much of this century and still exists in some circles.
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DRUGS AGAINST DEPRESSION

The message? If you are depressed, be glad you live now rather than in the past. For only recently have we begun to unravel the provable, physiological causes of mood changes and thus to have predictable, physical treatment.

Such understanding began during the 1940's and 1950's when scientists who were researching a drug called reserpine for use as a tranquilizer and as a means to control high blood pressure noticed that it produced depression in some patients. Shortly thereafter, another group of scientists noted that some of the antihistamine drugs that are used in the treatment of allergies produced a lifting of depression in certain individuals. About the same time, an Australian doctor reported that lithium affected the mood of patients who took it.

Each of these discoveries implied that there is a strong relationship between our mood and our body's chemistry. Researchers began to watch more closely for any other hints that drugs could influence or change the moods of depressive patients or even create depression.

The point was this: if depression is purely psychological, as Jung and Freud suggested, then why are medications able to have such a marked effect on mood? The pendulum began to swing back: medical science again acknowledged the importance of chemical factors in the creation of depression. We now know that brain chemicals mediate virtually all feelings of love, hate, sadness, pleasure and anxiety in response to our experiences.

The present trend in medical science emphasizes the biochemical and genetic origins of depression. Psychological factors are now seen by many experts as catalysts that trigger a change in chemistry. Al-

most all psychiatrists now treat their patients both biochemically and psychologically. Research also makes it clear that in depressive illness, given the choice of treatment of only medication or only psychotherapy, medication alone far surpasses psychotherapy in effectiveness. However, I want to stress that both, together, work best.

There are now many different kinds of antidepressant drugs on the market and new ones with slightly different effects are discovered each year. One reason for this continuing search for new drugs is that not all antidepressants work equally well for all the people who suffer from depression. Indeed, this fact seems to support the theory that depression has many causes. Different types of depression respond to different kinds of medicine. Some antidepressants, such as Elavil, Ludmil and Sinequan, act as sedatives for agitated, anxious and insomniac depressives. Others such as Aventyl, Parnate and Nardil work as stimulants for patients who are lethargic, immobilized and apathetic.

The very diversity of the disease makes it difficult to know ahead of time which medication will eliminate which depression. So far, physicians have simply used their best judgment in each case, drawing upon their own experience and the available medical literature to know what kind of depressed person usually responds well to which pill.

This trial and error approach puts us in something of a predicament, however, since most antidepressants have to be taken for two to six weeks before their full effects are experienced. You can imagine the additional suffering involved if the first or second drug chosen by the doctor proves not to be the best one. When these delays take place, the depressed person (who feels utterly hopeless and incurable in
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My friend Joan was visiting from Florida. She was terribly worried about a dear friend, a gifted artist, who recently had withdrawn from his friends, stopped doing all the things he enjoyed, and started drinking heavily. I suggested she tell him to seek professional help.

In a later visit, she again mentioned her friend. He had gone to a psychiatrist who had placed him on antidepressant medication. When he did not respond, a different medicine was tried, and then another—all without response. Then they tried shock treatment, which apparently also did not work. Because he was becoming progressively more desperate, Joan told him about the nutritional treatment. Though he was interested, because of his inertia he kept postponing a visit to Los Angeles to investigate.

A few months later Joan phoned me to say her friend had died of an overdose of drugs. To add to the tragedy, a ticket to Los Angeles for the following week was found on his desk.

A great deal of research is being devoted to discovering specific ways to predict what patient will respond best to what medicine. As yet, no one single type of cure works for all depressions, but all depressed people can be cured of any single episode of depression, or of chronic depression, by the appropriate treatment. Some sufferers may respond well to the first medication they try. Even more respond positively to the multinutrient health-promoting approach described in this book—an approach that covers many bases and is virtually free from negative side effects.

**Brain Amine Theory**

As it became more clear that depression was alleviated by the use of various medications, researchers began looking for the reasons why these responses took place. They began to measure all kinds of substances in the blood, the brain, the spinal fluid and the urine, to find out what chemical changes occurred during depression, and what changes came about as a result of treatment. They discovered that depressed people often have alterations of several chemicals in their blood, spinal fluid and urine. Such alterations are now called “chemical markers” for depression. In other research, abnormal sleep brain wave patterns have been shown to accompany depression. Many of these chemical and brain wave tests are still primarily performed at the research level, although a few are available for clinical use.

**Neurotransmitters**

While research into depression progressed, other neurological and psychiatric scientists were discovering a group of substances in the brain known as the neurotransmitters. So far, about forty of them have been identified, and it is here that most professionals feel the greatest promise lies for understanding and treating neuropsychiatric disorders.

Neurotransmitters are chemicals that are released at nerve endings in the brain where one nerve cell is close to another. They allow messages to pass from one cell to the next and are essential for communication between cells. The releasing cell that passes along an effect is called the presynaptic neuron and the cell that receives the message is called the postsynaptic neuron. Their connection is called a syn-
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apse. After release, the neurotransmitter attaches to a location on the receiving cell called a receptor, that can link only with it and with no other neurotransmitter. It’s much like calling someone on the telephone.
You need two phones (two cells) and a signal connection between them, and each phone rings only on receiving the activation of its given number.

The function of the relayed message is dependent upon the location of the nerve cell and the particular neurotransmitter it releases. One neurotransmitter, for instance, helps to pass what are called excitatory impulses through the nervous system, while another transmits “inhibitory” impulses. This is a little like putting your foot on the accelerator or the brake pedal of your car. Some neurotransmitters stimulate positive or “rewarding” thoughts and behavior, while others produce negative or “punishing” responses.

The quantity of available neurotransmitters is important, but so also is the “sensitivity” of the receptor cells. An altered or impaired sensitivity is another marker of depression. Using the previous analogy, if you press your car brakes and such pressure is not received on the brake drum, your car will not stop.

When certain sites in the brain contain too much or too little of these chemicals, or when the receptors are not sensitive and connecting with the chemical, serious problems can result. Parkinson’s disease, for example, is caused by an imbalance of the neurotransmitter dopamine in specific areas of the brain. It is a neurological disorder that usually comes on in older age and makes deliberate movements difficult. People with the illness walk with a slow shuffle, holding their arms stiffly at their sides with little free movement, and have mask-like faces devoid of spontaneous expression. They also usually have a tremor. Depression, forgetfulness and other “psychological” symptoms may go along with the disease. Happily, in

the case of Parkinson’s the discovery of which neurotransmitter was deficient led to the development of a treatment which replaces the missing substance, providing dramatic relief. Because of such successes, researchers are always looking for neurotransmitters in order to determine how they might relate to neuropsychiatric disorders.

Probably the most popularly known neurotransmitter is endorphin, which is associated with the relief of pain and can also produce a euphoria-like state. We have all read about the apparent increase of endorphin in the brains of those who jog regularly and for a sufficient length of time. The endorphins are considered to be the cause of the “high” that runners commonly experience.

Endorphin reacts or binds to certain “receptor sites” in the brain (as do all neurotransmitters). Interestingly, it reacts with the same receptor sites as do potent external medication pain killers such as Demerol, morphine and heroin. One reason people may feel little or no pain under severe trauma, like the loss of a limb, is because the body releases a flood of endorphin to block temporarily what would otherwise be excruciating pain.

According to one theory the heroin or morphine addict may have a brain deficiency of the naturally occurring endorphins, which could then lead him to crave outside endorphin-like substances. This provocative concept needs further exploration.

In addition to the general maintenance of all brain activity, the neurotransmitters regulate your mood and control your sleep, appetite, aggression, memory, alertness and many other functions. Their deficiency also creates depression, and there is no question that many depressed people contain below average amounts of certain neurotransmitters in the mood centers of their brains. Their nerve signals are not
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When certain sites in the brain contain too much or too little of these chemicals, or when the receptors are not sensitive and connecting with the chemical, serious problems can result. Parkinson’s disease, for example, is caused by an imbalance of the neurotransmitter dopamine in specific areas of the brain. It is a neurological disorder that usually comes on in older age and makes deliberate movements difficult. People with the illness walk with a slow shuffle, holding their arms stiffly at their sides with little free movement, and have mask-like faces devoid of spontaneous expression. They also usually have a tremor. Depression, forgetfulness and other “psychological” symptoms may go along with the disease. Happily, in

the case of Parkinson's the discovery of which neurotransmitter was deficient led to the development of a treatment which replaces the missing substance, providing dramatic relief. Because of such successes, researchers are always looking for neurotransmitters in order to determine how they might relate to neuropsychiatric disorders.

Probably the most popularly known neurotransmitter is endorphin, which is associated with the relief of pain and can also produce a euphoria-like state. We have all read about the apparent increase of endorphin in the brains of those who jog regularly and for a sufficient length of time. The endorphins are considered to be the cause of the “high” that runners commonly experience.

Endorphin reacts or binds to certain “receptor sites” in the brain (as do all neurotransmitters). Interestingly, it reacts with the same receptor sites as do potent external medication pain killers such as Demerol, morphine and heroin. One reason people may feel little or no pain under severe trauma, like the loss of a limb, is because the body releases a flood of endorphin to block temporarily what would otherwise be excruciating pain.

According to one theory the heroin or morphine addict may have a brain deficiency of the naturally occurring endorphins, which could then lead him to crave outside endorphin-like substances. This provocative concept needs further exploration.

In addition to the general maintenance of all brain activity, the neurotransmitters regulate your mood and control your sleep, appetite, aggression, memory, alertness and many other functions. Their deficiency also creates depression, and there is now no question that many depressed people contain below average amounts of certain neurotransmitters in the mood centers of their brains. Their nerve signals are not
relayed from one cell to the next at a fast enough rate to maintain a normal level of mood and behavior. Researchers have found that higher levels of neurotransmitters actually increased the amplitude of the message sent to the next cell. They have also learned that once depression is treated and cured, the neurotransmitters actually return to normal.

**SEROTONIN AND NOREPINEPHRINE**

Serotonin and norepinephrine are the most significant neurotransmitters that are depleted in the brains of those who are depressed. Norepinephrine is present in excess in the brains of those experiencing mania, which is, in many ways, the opposite or opposite of depression.

When researchers began to investigate how the different antidepressants work, they discovered that these medications tend to bring about the same end result—increases of serotonin and norepinephrine in the brain. This in turn produces a marked improvement in the mood and outlook of previously depressed people.

Since norepinephrine and serotonin belong to a chemical group called the amines, the theory of depression that emerged from all this very persuasive research became known as the brain amine (or monoamine) theory of depression. Ninety percent of these amines are located in an area deep in the brain known as the limbic system. This system controls emotions, pain perception, sleep, and involuntary functions such as digestion, elimination and so on.

Because the amines are so important, the normally functioning brain has a mechanism for conserving them. This process is called reuptake. After the reaction takes place, the nerve cell takes back about 85 percent of the amines it has released and conserves them for later use. The other 15 percent is broken down by an enzyme called MAO (monoamine oxidase) and usually leaves the body in the urine. Thus, in the normal brain only 15 percent of the amine concentration regularly needs to be newly manufactured in order to keep the nerve cell communication mechanism going.

What can happen to foul this astonishing chemical process?

1. There may not be enough amines in the first place because of inadequate "raw materials" or precursors, chiefly amino acids, and their necessary cofactors, enzymes, vitamins and minerals.
2. There may be a genetically determined excessive need for the substances required to form the brain amines.
3. The reuptake mechanism may not be functioning properly.
4. There may be too much MAO so there is excessive destruction of the amines. This tendency toward excess MAO may be inherited. Also, as we age we have increased MAO, a factor leading to higher risk for depression in the elderly.
5. The receptor cells may not be properly sensitive or receptive to a normal level of the amines.

The common purpose of all biochemical treatments for depression is to increase the amount of these neurotransmitters at the synapse. Some drugs, such as the tricyclics, block the reuptake mechanism, allowing more amine to accumulate in the synapse. Others, such as the MAO inhibitors, block the MAO enzyme and slow the breakdown. Other drugs increase the sensitivity of the receptor cells, and still newer medicines act by mechanisms we’ve yet to understand.
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The precursor nutrients (amino acids, enzymes, vitamins and minerals) appear to be the safest, most effective way of increasing the brain amine levels. They simultaneously increase both norepinephrine and serotonin, while the more traditional antidepressant drugs generally increase only one or the other of these brain amines and may not work if both amines are depleted.

To put things bluntly, the research and results indicate we are almost to the point where ignoring such chemical factors in a person with major depression might constitute negligence, if not malpractice.

**GENETIC CAUSES OF DEPRESSION**

A 1981 report from Yale University begins with the words: "Inherited variations in the activity of enzymes involved in neurotransmitter metabolism are thought to affect individual differences in neurophysiology, behavior, and susceptibility to disease" (Pintar et al., J. Neuroscience). The tendency toward depression is one of those traits related to neurotransmitter metabolism that can definitely be inherited. This is one reason why family history may be important in determining diagnosis. Those depressions that begin before the age of thirty, and are severe or recurrent, are most likely to be strongly influenced genetically.

Though the exact mechanism by which depression is transferred from parent to child is not yet fully understood, we are already pretty certain that the trait can be transferred on many different genes. When only a few of these predisposing genes are inherited, they'll result in milder forms of depression; when many of the genes are inherited, severe depression can occur. This multiple gene action explains why mood disorders do not follow as set, or predictable a pattern as do some other inherited traits.

Also, we are ultimately products of the interaction between our genetic influences and our environment. What goes on in our lives can exaggerate or diminish our genetic tendencies. If our genes predispose us toward fat accumulation, sadly, we must eat less and exercise more than the lucky ones with lean producing genes. If we have inherited a tendency toward insufficient neurotransmitters, a little stress and a little alcohol may plunge us into despair, whereas our friend can drink every day, lead a fast-paced, stressful life and feel okay—for a while anyway.

If you are depressed, there is a 20 to 25 percent chance that what is called a "first degree relative"—your parents, children or siblings—is also depressed. If you are not depressed, the chances of a first degree relative of yours being depressed is only 7 percent.

When one parent is depressed, the lifetime risk for the child to be affected is 17 percent. When both parents are depressed, the risk to their children of developing depression at any time in their life is 55 to 75 percent. You can see that genetic counseling can be extremely important for depressed parents.

Some professionals attempt to explain these familial patterns by arguing that we merely copy or imitate the depressed moods of family members. Yet, studies have been done on depressed persons who have had little or no contact with their families. The findings? The percentage of hereditability is basically the same, even when the patients have never known any of their biological relatives. For instance, when identical, same-egg twins are raised in entirely different environments, there is a 67 percent chance of both being depressed, if one is depressed.

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There is also evidence to suggest that genetic fac-
tors may operate in vulnerability to suicide: the suicide rate in the relatives of depressed patients is more than ten times that of control groups. A striking example of this kind of genetic loading was presented very early in my career. In medical school, the psychiatry professor who taught us about depression candidly told us the horrible story of losing both parents in his childhood when they committed suicide together in their carbon monoxide-filled garage. Thereafter he spent his life trying to understand depression. In the end, perhaps he understood the agony too well, for a few years after I completed medical school I heard he had chosen to take his own life with an overdose of sleeping pills. Later I learned that his son, too, was suffering from depression.

**Genetic Association with Other Disorders**

Studies show a higher incidence of depression in families with alcoholism, drug abuse, eating disorders, anxiety disorder, agoraphobia and hyperactive children, leading us to believe that the genetic influences sometimes overlap in these conditions. Treatment for depression can often improve or eliminate these genetically associated conditions.

It's no surprise to find a connection between depression and eating disorders—because our appetite and mood control centers are in the same area of the brain and both are influenced by the same neurotransmitters.

As yet, orthodox psychiatry has not developed any treatment intervention that can work preventively to reduce such genetic risks. But those who are so disposed would be wise to be careful about diet, nutrient supplementation and stress reduction programs as means of decreasing or negating these tendencies.

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