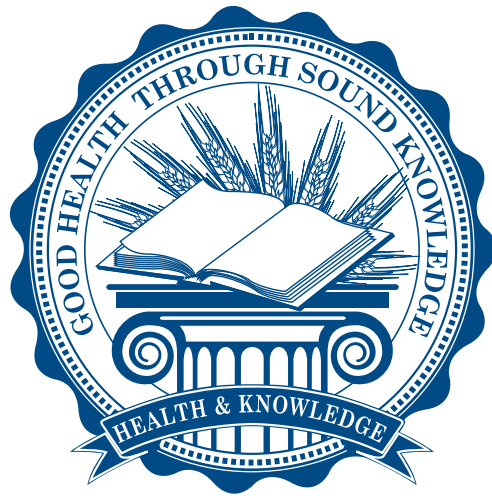


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# Depression: Current and Alternative Treatments

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## Common Symptoms of Depression

Though depression is a very individual condition, varying in severity and in character from person to person, there are some common symptoms that, if shown in an individual for an extended period of time, can point to major depression:<sup>9</sup>

- Fearful, overwhelmed feelings
- Onset of a fear of being alone
- Preoccupation with failure, illness
- Nightmares, especially with themes of loss, pain or death
- Loss of ability to experience pleasure
- Indecision
- Onset of unexplained anxiety, panic attacks
- Sleep disturbance (too much or too little, especially with early morning awakening)
- Appetite disturbance (increased or decreased, usually enough to cause weight change)
- Fatigue, low energy
- Vague aches and pains, heaviness in the chest
- Constipation
- Loss of interest in sex
- Poor concentration, slow thinking

*Depression. Just the word itself conjures up negative associations: “down in the dumps,” “feeling blue,” “in a bad mood,” “low spirits,” “dejected,” and “cast down”. Yet everyone can feel sad or discouraged at one time or another. In today’s world, the phrase “I’m depressed” can simply mean that someone is feeling down or out of sorts, a condition that is usually temporary, lasting only a few days.*

*However, clinical depression is quite a different and more serious matter. A true medical disorder, it is characterized by persistent and sometimes severe feelings of worthlessness, guilt, sadness, helplessness and hopelessness.<sup>1</sup> Other common symptoms include inactivity, difficulty thinking or concentrating, appetite changes, sleep disturbances and sometimes suicidal tendencies.*

*Unfortunately, depression is the world’s leading cause of chronic (recurring) disabilities. Some 18 million Americans suffer from clinical depression,<sup>2</sup> and over 28 million take antidepressant drugs or anxiety medications.<sup>3</sup> The nation spends about \$44 billion per year in treatment, disability and lost productivity.<sup>4</sup> Prozac, a common antidepressant, was the third top-selling drug in the country in 1997.<sup>5</sup> In fact, according to a November 1993 report in the *Journal of Clinical Depression*, the cost for depression adds up to more than that for cancer, AIDS, or coronary heart disease!<sup>6</sup>*

*Why are so many people glum? There are several theories, including those that cite our modern stressful lifestyles or deficient diets as major factors. Thirty-five million people are known to suffer from Seasonal Affective Disorder (SAD), in which symptoms like fatigue and desperation appear in the winter time when there is less exposure to sunlight.<sup>7</sup> Indeed, depression can be caused by many things, including traumatic life events or chemical imbalances in the brain. Because of the variety of different kinds and levels of depression, antidepressant drugs help only 60 to 70% of patients, and even then often only after a period of trial and error. Furthermore, they’re expensive—Prozac typically checks out at one dollar per pill.<sup>6</sup> Worse, some people experience unwanted side effects from antidepressant medications.*

*Fortunately, clinical research has discovered natural and less expensive alternatives to treating mild to moderate depression. The first and most prominent of these is St. John’s wort. A humble yellow-flowered plant native to Europe and Asia and brought to the United States by European colonists, the herb has long been reputed to have many health benefits, the strongest is its effect on mood. However, only in recent years have researchers taken this traditional remedy to the lab to gather true scientific data on its effectiveness. The results have been positive, even when putting the extract up against common antidepressant drugs. In fact, St. John’s wort is currently the leading antidepressant remedy in Germany.<sup>8</sup>*

## Lifestyle Remedies for the Blues<sup>1</sup>

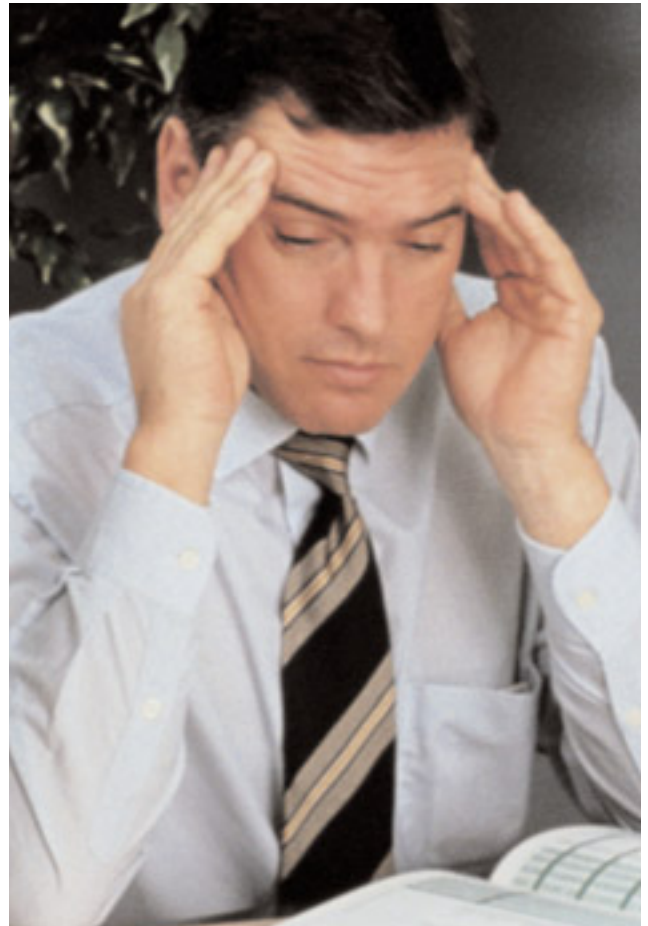
1. Exercise vigorously,
2. Eat more fruits and vegetables,
3. Cut back on sugar/caffeine,
4. Have a good cry,
5. Do something you enjoy,
6. Explore a new place
7. Spend time with “up” people
8. Make real plans to change the situation that’s getting you down,
9. Start a project with a goal—redecorate, become better at a sport or craft, take a class

*In addition, research has suggested that both folic acid (a B vitamin) and vitamin B12 may affect mood and behavior, as deficiencies in these vitamins are common in depressed patients.<sup>3</sup> Correcting such nutritional deficiencies has resulted in mood improvement. And finally, a compound called 5-HTP that is extracted from an African plant (*Griffonia simplicifolia*) has shown in numerous double-blind studies to have equal effectiveness against depression as common antidepressants like Prozac and Paxil. Best of all, like St. John’s wort and the B vitamins, it is less expensive and better tolerated by the body.*

## Depression—What is it?

Mark S. Gold, M.D., likens depression to another of life’s largest emotions: “Depression is like love: It is a state of mind that overwhelms and distorts the senses... But whereas love seems to imbue all the molecules of the earth with a heavenly, light energy, depression increases the weight of the world until finally it is too dense and dark to stand up in. Worse, the self loses its value in such an atmosphere. The depressed person is but one more grain of sand washed up on an endless, meaningless beach.”<sup>10</sup>

To put another way, depression is a recurring low mood. It is a feeling that dulls life and living. The experience seems final. It is more than just sadness, though sadness is a significant part of the feeling. Words like *grief* and *bereavement* are closer in comparison. *Despair* and *hopelessness* are other similar words. The condition can negatively affect the way we feel about ourselves and our future. Some researchers speak of a difference between “normal” depression and “abnormal depression.” Francis M. Mondimore, M.D., reports that “normal” depression is understandable and proportional, but most of all *reactive*.



## Possible Physical

### Causes of

### Depression<sup>10&12</sup>

It is imperative to see a physician when experiencing the symptoms of depression, as the disorder may be the result of another condition, including the following:

- Nutritional imbalance or deficiency
- Anemia
- Malfunction of the thyroid gland
- Low-grade infection
- Allergic reactions
- Schizophrenia
- Body chemistry malfunction,
- Heart disease
- Side effect of a drug
- Alcoholism
- Diabetes

In other words, because of some life event or identifiable stressor, a person reacts and experiences depression. Sometimes this form of depression is called “reactive depression.”

Abnormal depression, on the other hand, acts more like a disease in that it often appears just “out of the blue.” It is usually characterized by more prominent feelings of guilt, failure, and loss of interest in pleasurable activities. Most importantly, this type of depression is out of proportion with life events, and it often persists in a recurrent manner, consistently pulling the person back to depressive thoughts even when he/she may be attempting to divert those thoughts. This type of depression is often called “primary depression,”<sup>11</sup> and is often the result of chemical imbalances in the brain.

Why bother with classifying depression as one type or another? Doctors can often use the classification to assist in diagnosing the patient, as those with reactive depression can improve with psychotherapy, whereas those with primary depression often respond better to medication. However, these classifications are still very elementary and do not cover all the possible forms of depression. For example, patients often have a combination of both types. Therefore, a combination of both methods of treatment is usually prudent with any type of depression.

### A Problem in the Brain

No matter which type of depression an individual experiences, he/she is undergoing changes in the function of the brain. Much as we may like to think that how we think, feel and act are strictly matters of mystery, science has discovered in recent years that all these functions follow the laws of biology and chemistry. And though researchers still don't have all the answers to why depression acts as it does, they have discovered some of the basic principles that occur in the brain when an individual is depressed. To understand the process, it is helpful to begin with a brief overview of how the brain works.

### A Mass of Nerve Cells

The brain consists of ten billion to a trillion nerve cells. Of which there are two types: the *glial* cells and the *neurons*. The glial cells keep the brain supported, protected and fed, but otherwise their function is still mostly a mystery.<sup>2</sup>

The neurons, however, are believed to do all the actual brain “work.” They are constructed like any other typical cell, except they have a web of finger-like appendages that protrude from the cell body (called *dendrites*). These appendages receive information and relay it to the cell body, which then sends it on down—to the *axon*.

The axon projects like a stem or a tail from the cell body of the neuron, and its responsibility is to relay messages to *other* neurons. At the end are hundreds of branches, each with a sort of “message delivery” terminal. With each cell having a legion of appendages to receive information and as many as one thousand axon terminals to relay information, “in a single human brain the number of possible

**Neuron:** the basic functional unit of the brain

**Neurotransmitters:** the fundamental unit of communication.

*Our brain power comes from the “wiring” of neurons—the pathways—among the specialized structures of the brain.<sup>10</sup>*

### Untreated Depression Can Become Chronic

Researchers know that depression alters the secretion of certain hormones in the body. Consequently, it negatively affects the immune system, which can lead to increased susceptibility to disease and infection. In addition, should the condition continue without treatment, it can become chronic, or consistently recurring. Dr. Mark S. Gold says in his book, *Good News About Depression*, “If ... the depression is not treated, and if suicide does not intervene, the brain will begin to see depression as normal. It will no longer work to resume its previous balance. The depressed state will become chronic.”<sup>10</sup>

interconnections between these cells is greater than the number of atoms in the universe!” (as Robert Ornstein and Richard F. Thompson exclaim in their book *The Amazing Brain!*).<sup>10</sup>

### From One Neuron to Another

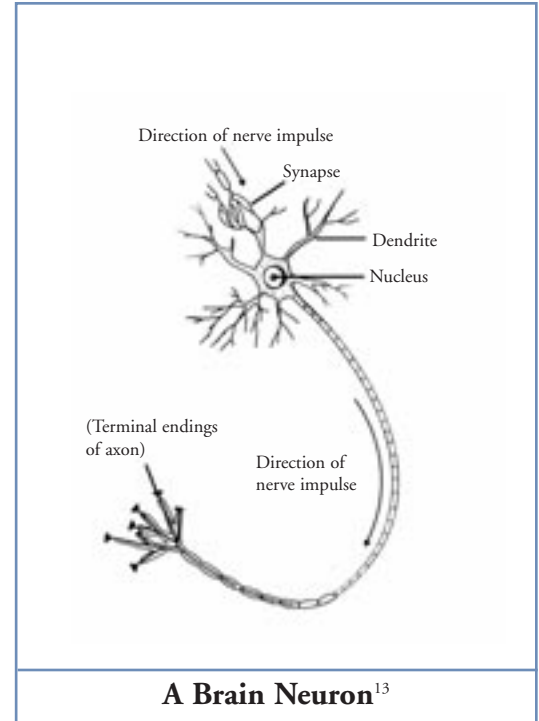
Though it may seem necessary for proper communication, no two neurons are directly connected. Instead, a space of a millionth of an inch separates them (called a *synapse*). How, then, can the messages be transferred from one neuron to the next? Chemicals. When the axon (“tail” or “stem” of the neuron cell) gets the word to relay a message, it sends an electric pulse that stimulates one of its terminals to release its chemical contents. These chemicals are appropriately called *neurotransmitters*.

Like little messengers, neurotransmitters move from the axon of one neuron to the receptors on the finger-like appendages (dendrites) of another. Similar to a lock and key, the transmitter and receptor must fit together. If so, the message continues on, likely to pass from one neuron to the next in a chain reaction, taking the message “on down the line,” much like a telephone wire. The transmitter, once it’s completed its job, either remains in circulation to connect with another receptor, is taken back (or “recycled”) by the axon to be used again later, or is broken into smaller pieces by *enzymes* and eliminated from the body.<sup>13</sup>

Researchers speculate that the brain manufactures several hundred types of neurotransmitters. About 30 have been identified so far, and though they are small in size, they are considered to be one of the key components in the occurrence of depression.

### What Does This Have to Do With How I Feel?

The fact that chemicals can affect brain function and mood can be seen in the changes that occur when someone drinks alcohol (containing ethyl alcohol) or takes drugs. Since the brain uses chemical messengers to carry out its work, including muscle function, researchers hypothesized that such chemical messengers could regulate mood as well. Further, they proposed that mood disorders could result from an imbalance of these neurotransmitters. Consequently, it seemed that medication that could restore the proper balance could thus improve the disorder.



**A Brain Neuron<sup>13</sup>**

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*"The field of pharmacotherapy currently embraces a broad range of around 40 commercially available... antidepressants... Since all these tend to be accompanied by adverse drug reactions... research must now be aimed at developing substances with fewer side effects, or at least better tolerance, without sacrificing efficacy."*

-Dr. Theo R. Payk

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### **Standard Treatments—The Theory**

The standard medications for depression work on the theory that depression is caused by a deficiency of certain neurotransmitters, namely *serotonin* and *norepinephrine*. (Other neurotransmitters that may be involved include *dopamine* and *gamma-amino-butyric acid* or GABA.)

Serotonin is a neurotransmitter that has been referred to as the brain's own mood-elevating and tranquilizing drug. In experimental studies, low levels of serotonin have been linked with depression, and really low levels have been observed in people who have committed or attempted suicide.<sup>3</sup> Many of today's common antidepressant drugs (such as Prozac, Zoloft, Paxil) act primarily by increasing the duration of serotonin (or other similar neurotransmitter) in the brain, allowing it time to create more of its mood-enhancing effects. These medications come in two basic types:

- 1) those that prevent the brain's standard uptake and recycling of these neurotransmitters (often called *selective serotonin-reuptake inhibitors* or SSRIs), and
- 2) those that prevent the breakdown of these neurotransmitters (performed by the enzyme called *monoamine oxidase* or MAO).

### **Unwanted Side Effects—The Antidepressant Drawback**

Unfortunately, though antidepressants are often effective in treating depression, they carry with them various side effects that have bothered people for years. These can include nausea, headaches, nervousness, insomnia, anxiety, drowsiness, diarrhea, dry mouth, sweating, dizziness, constipation and vision changes. Those experiencing these side effects can become worse instead of better, as they often feel more discouraged and sometimes refuse to continue medication. In these situations, other medications can be tried, and sometimes a different type will work better. Also, time on the medication can reduce somewhat the experience of side effects. However, as with any drug, the problem of side effects remains, and thus the search for effective but more tolerable solutions has motivated researchers to test natural alternatives. In a recent scientific article by Dr. Theo R. Payk, it is emphasized that "the field of pharmacotherapy currently embraces a broad range of around 40 commercially available... antidepressants with the major groups. Since all these

#### **Potential Side Effects of Antidepressants<sup>3</sup>**

- Nausea
- Nervousness
- Anxiety
- Diarrhea
- Dry mouth
- Dizziness
- Vision changes
- Headache
- Insomnia
- Drowsiness
- Tremor
- Sweating
- Constipation

tend to be accompanied by adverse drug reactions... research must now be aimed at developing substance with fewer side effects, or at least better tolerance, without sacrificing efficacy."<sup>14</sup>

## The Effective Alternatives

### St. John's Wort

Licensed in Germany to treat anxiety, depression and insomnia, St. John's wort was prescribed there in nearly 66 million doses in 1994, where it outsells Prozac seven to one.<sup>15</sup> Natural, low-cost, and available without a prescription, with the occurrence of side effects that's practically nil, this extract, taken from a common flower, has been hailed by the news show *20/20* as a "startling medical breakthrough."<sup>15</sup> Tests have yet to be completed in the U.S., though the National Institutes of Health is already planning a 3-year clinical trial, the first of its kind in America. However, several studies have been conducted in Europe, all showing St. John's wort to have a significant positive effect on depression.

### The Histories of a Flower

Also known as Klamath weed and goat weed, St. John's wort is a perennial weed that grows in sunny areas in well-drained, sandy soil.<sup>17</sup> The small, yellow flowers can cover a field, making it beautiful to the eye but not so appealing to farmers, who consider the plant a nuisance. Besides the former names, St. John's wort is often referred to by its scientific name: *Hypericum perforatum*. Hypericum is a derivative of the Greek words hyper and *eikon* which translate to "over" and "icon," as in "over an apparition." This seems to allude to the flower's use in ancient times for protecting against demonic possessions and "evil spirits," as ancient Greeks and Romans placed sprigs of hypericum above images or statues in their homes for this purpose. "Perforatum" is based on the perforated appearance of the leaves, notable because they contain translucent excretory glands, which look like perforations and can be seen when held up to the light.<sup>19</sup>

It seems there are just as many stories about how the name "St. John's wort" came about as there are letters in the name. One account cites the fact that the flowers bloom around St. John's Day (June 24). Another points to the fact that the red pigments which are exuded when the buds and flowers are squeezed were associated with the blood of St. John the Baptist. A third refers to an ancient English custom of throwing the flowers into a bonfire on the eve of St. John's Day. A fourth quotes the Gaelic legend from the 6th century that tells of the missionary St. Columba, who always carried a piece of St. John's wort because of his high regard for St. John.<sup>19</sup> Yet another says that the plant was espoused by St. John of Jerusalem who is said to have used it in the time of the Crusades for its abilities to clean and heal terrible battle wounds. The word "wort" is an Old English term for "plant."<sup>18</sup>

For centuries St. John's wort has been used in a variety of ways, from an anti-inflammatory, sedative, analgesic, and diuretic, to an antimalarial and a substance that enhances wound healing. Even Hippocrates is known to have written

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*In study after study, St. John's wort consistently improved depression, apathy, anxiety, sleep disturbances and feelings of worthlessness.*<sup>3</sup>

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about its medicinal qualities. The tradition continued when colonists brought the plant to America, where they continued to use it to heal wounds, ulcers, insect bites, hemorrhages, and to cure children of bed-wetting and nightmares. However, St. John's wort has been most commonly used for the treatment of psychiatric disorders, and now has been shown to significantly effective against depression.

#### **How Does It Work?**

In 1942 the compound *hypericin* was isolated from St. John's wort and used to treat emotionally disturbed people.<sup>20</sup> Indeed, researchers still believe that hypericin is the active compound in the plant that affects depression. However, studies have not yet proven this fact, and since there are other compounds that may be acting on the disorder, including various *flavonoids* (beneficial compounds found in plants), the essential oil, and *xanthon*s (compounds that are the parents of several natural yellow pigments), scientists recommend that the entire plant be used in any St. John's wort extract.<sup>21</sup> In fact, Roy Upton, executive director of the American Herbal Pharmacopoeia, says that a whole plant extract increases the likelihood that the product is rich in flavonoids, which may prove to be even more active than hypericin.<sup>22</sup>

How does St. John's wort work? It is believed that the hypericin, like the active ingredients in other antidepressants, keeps the mood-enhancing serotonin in the brain for a longer period of time. However, the precise method of action remains to be determined by studies. In the meantime, clinical studies (those involving direct observation of a patient) have continuously and consistently shown that St. John's wort *works*.

#### **Studies Show: St. John's Wort Effective**

A 1996 study published in the *British Medical Journal* is considered the most influential recent study on St. John's wort. Researchers from Munich and San Antonio pooled the results of 23 European studies involving 1,757 patients to come up with a *meta-analysis*, or an analysis of combined results.<sup>23</sup> These studies, in general, involved two groups of depressed patients, one of which was treated with St. John's wort extracts, and the other with a placebo (inactive pill) or common antidepressant. The antidepressants used were *amitriptyline* (Elavil), *desipramine* (Norpramin), *imipramine* (Tofranil), and *maprotiline* (Ludiomil). At the beginning and the end of the trials, patients were evaluated by clinicians using standardized, generally accepted methods of assessing the symptoms of depression.<sup>24</sup>

The results of the meta-analysis showed that St. John's wort extracts were more effective than placebo: 51% of patients taking the extract improved, whereas only 22% of those taking placebo improved. Even more notable were the comparisons with common antidepressants 64% of those on the extract improved, compared to 59% taking drugs.<sup>23</sup>

#### **St. John's Wort Shown Effective** Pooled Results of 23 European Studies

##### **•In Comparison with Placebo:**

<b>St. John's Wort:</b>	51% Effective
Placebo:	22% Effective

##### **•In Comparison with Antidepressants:**

<b>St. John's Wort:</b>	64% Effective
Antidepressants:	59% Effective

### **SAD: A St. John's Wort Study**

Nearly 35 million Americans suffer “winter blues” each year, exhibiting symptoms such as weight gain, oversleeping, irritability, fatigue and desperation. Though these can be common feelings associated with holiday stress, doctors have found that much of the suffering stems from Seasonal Affective Disorder (SAD)—a depressive disorder that occurs regularly with the onset of winter and doesn't usually end until early spring. The disorder has been associated with lack of sunlight: according to the University of British Columbia's Mood Disorders Clinic, nearly 10% of Alaskans (people living in a low-sunlight area of the world) may suffer from SAD, whereas only about 1% of those living in Florida fall victim to the disorder.

Light therapy, wherein a patient spends two-three hours a day exposed to bright light, is a common treatment for SAD. A recent study, however, noted the additional effectiveness of St. John's wort. Published in a 1994 *Journal of Geriatric Psychiatry*, this study observed 20 people with SAD who were given hypericum and then were treated either with bright light or dim light. After four weeks, researchers found hypericum significantly alleviated feelings of depression. Those patients treated with bright light and hypericum improved the most, and no side effects were reported.<sup>27</sup>

Perhaps most importantly, St. John's wort seems to fit into the line of products being sought by researchers, since it was better tolerated by patients than common antidepressant drugs. In this meta-analysis, 35.9% of patients on common antidepressants experienced side effects (most often drowsiness, dry mouth, constipation), but only 19.8% of those taking St. John's wort reported any adverse events (usually mild gastrointestinal complaints, allergies, tiredness).<sup>19</sup> A few isolated clinical trials have reported an increased sensitivity to the sun when taking St. John's wort, and therefore it might be wise to avoid prolonged exposure to the sun when taking the extract, but there have been no reports of phototoxicity despite the herb's regular use in Europe.<sup>25</sup>

In fact, the low incidence of side effects is considered by researchers to be St. John's wort's biggest advantage. Harrer and Schultz, authors of one of the studies comparing St. John's wort with other antidepressants, write, “It is generally agreed that hypericum is effective in the treatment of outpatients with mild-to-moderate depression. This opinion is based not only on its high degree of efficacy, but also on hypericum's excellent tolerability. Thus, in a drug-monitoring study with 3,250 patients, side effects (usually mild) were observed in only 2.5% of the cases. Another trial showed that hypericum does not have any sedative effect, nor does it interact with alcohol, especially important in the view of patients' ability to drive and of their fitness to work.”<sup>21</sup>

## 5-Hydroxytryptophan (5-HTP): Another Serotonin-Booster

Mood-affecting neurotransmitters, such as serotonin, epinephrine, dopamine, and gamma-aminobutyric acid (GABA) are made by components known as *amino acid* precursors. Amino acids are the chief components of protein in the body, and amino acid precursors are simply those components from which amino acids are made. These precursors come in different types; for the purpose of this discussion on depression, tryptophan and 5-hydroxytryptophan (5-HTP) are mentioned.

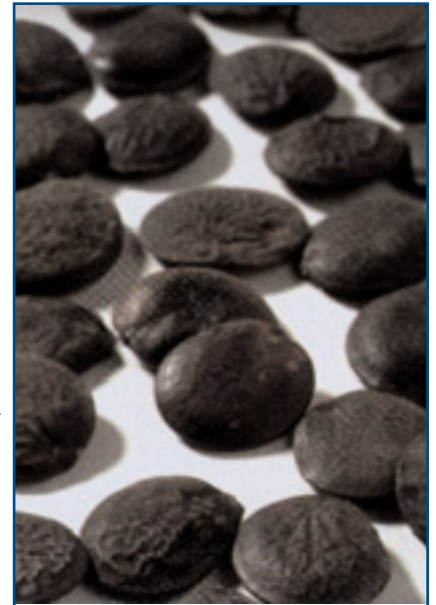
Tryptophan was used to treat insomnia and depression in the United States and around the world for 30 years. The theory behind its use was that it increased the levels of serotonin and other mood-enhancing neurotransmitters in the brain. However, when some of the product manufactured in Japan became contaminated because of changes in the filtration process (which included changes in the bacteria used to produce the tryptophan), several people experienced severe allergic reactions. Tryptophan is again coming back to the market, but since then a related compound has shown even more promise in treating depression: 5-HTP.

5-HTP, another component that is involved in making neurotransmitters, has definite advantages over regular tryptophan. First, it is extracted from a natural plant—*Griffonia simplicifolia*—that grows in Africa, rather than being made in the lab with the help of bacteria. Second, 5-HTP is converted to serotonin in greater amounts than is tryptophan: over 70% of an oral dose<sup>28</sup> as compared to only 3% with tryptophan.<sup>29</sup> And finally, 5-HTP increases other neurotransmitters besides serotonin, enhancing its side effect on mood.<sup>3</sup>

Numerous studies have confirmed the effectiveness of 5-HTP in dealing with depression. The compound has even shown equal effectiveness to drugs like Prozac, Paxil, and Zoloft, yet with fewer and milder side effects. It improved depressed mood, anxiety, and insomnia, even enhancing the *quality* of sleep. This finding is especially exciting, considering the fact that standard antidepressants often disrupt the sleep process.<sup>3</sup>

## B Vitamins—Also Shown to Help Depression

In studies of depressed patients, 31-35% have been shown to be deficient in folic acid, one of the major B vitamins.<sup>33-35</sup> In fact, depression is the most common



Griffonia Seeds

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*"When one is  
out of touch  
with oneself,  
one cannot  
touch others."*

-Anne Morrow  
Lindbergh, *Gift  
from the Sea*

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symptom of a folic-acid deficiency, and folic-acid deficiency is the most common nutrient deficiency in the world!<sup>5</sup> A vitamin B12 deficiency is less common than that of folic acid, yet it can also cause depression, especially in the elderly.<sup>36&37</sup>

Researchers believe that the protective effect produced by these vitamins results from their ability to supply neurotransmitters with a major component—*S-adenosyl-methionine*—that assists in their function. Indeed, without this crucial component, neurotransmitters cannot function at all. It's like the B vitamins supply a sort of fuel to the "good mood" messengers in the brain. Studies in this area have shown that folic acid supplementation has increased levels of serotonin, the brain's "good mood" neurotransmitter.<sup>38&39</sup> The dosages have typically been high: 15-50mg. These dosages have been shown to be safe and effective as antidepressants. However, most scientists and nutritionists agree that regular intake of the recommended daily value of these vitamins is sufficient to avoid deficiencies that could lead to depression.

### **The Research Continues**

Anne Morrow Lindbergh said, in her book *Gift from the Sea*: "When one is out of touch with oneself, one cannot touch others." If nothing else, it seems depression takes us away from who we truly are, forcing us to use coping mechanisms that change the way we act around others, and worse, darken the way we perceive ourselves. Fortunately, with the right medical attention. Depression can be treated. Furthermore, with new natural remedies coming on the scene people can experience relief with less discomfort or inconvenience than ever before. In addition, we can look forward to further research here in the U.S., as the medical community starts to realize the benefits that nature has to offer, perhaps eventually leading to a reduction in our reliance on synthetic drugs which often carry harmful



side effects. Already the National Institutes of Health is studying St. John's wort, with results forthcoming within a few years. This marks a turning point in the medicine of the future, one that promises to offer continued relief, more convenience, fewer side effects, and an overall higher probability for a healthy population.

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- <sup>13</sup> Murray, M.T., *5-HTP: The Natural Way to Overcome Depression, Obesity, and Insomnia* (New York: Bantam Books, 1998).
- <sup>14</sup> Payk Th.R., "Treatment of Depression," *Journal of Geriatric Psychiatry and Neurology* 7, Suppl. 1 (October, 1994).
- <sup>15</sup> "A Natural Remedy for Depression?" *Health After 50* (October, 1997).
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- <sup>19</sup> Upton R., et al., *St John's Wort (Hypericum Perforatum): Quality Control, Analytical and Therapeutic Monograph*
- <sup>20</sup> *The Little Herb Encyclopedia, The Handbook of Natures Remedies for a Healthier Life* (Woodland Publishing).
- <sup>21</sup> Harrer G., and Schultz V., "Clinical Investigation of the Antidepressant Effectiveness of *Hypericum*," *Journal of Geriatric Psychiatry and Neurology* 7, Supplement 1 (October, 1994), S6-S8.
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- <sup>23</sup> "Should You Take St. John's Wort?" *HealthNews* (April 20, 1998).
- <sup>24</sup> "St. John's Wort," *Harvard Women's Health Watch* (Aug. 1997).
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