We have seen that people who are suffering from depression very often have less than normal amounts of the chemicals serotonin and norepinephrine in their brains. Adding certain amino acids and vitamins to their diet can relieve the depression by restoring the balance of these important substances. This process is known as precursor loading and is the basis for the treatment program.

Now let’s go to work implementing an antidepressant therapy that:

1. Has far greater overall safety than conventional drug therapies;
2. Is preferable for long-term use;
3. Can be effective with intermittent usage;
4. Offers associated health benefits such as improved overall energy, improved mental and physical endurance and functioning, decreased infections and a myriad of other health benefits that can accrue from a basic balanced nutritional program;
5. Can prevent further depressive episodes;
6. Has flexibility, in that it can be adjusted to deal with a large variety of symptoms;
7. Has no associated withdrawal symptoms;
8. Has almost no toxicity and is virtually immune to dangerous misuse (in contrast, for example, to many standard antidepressant drugs);
9. Is composed of water soluble substances that don’t accumulate in your brain or other tissues;
10. Is metabolized by enzymes designed by evolution for that purpose;
11. And, finally, relies on your brain’s own remarkable ability to override and to shut off the process if the neurotransmitter concentrations become too high.

The Basic Program

We’ll begin by setting out an ideal minimum program for achieving greater neurotransmitter production. This assumes that low mood or depression is the key concern and that there are few other problems and symptoms. If you have any serious medical illness, be sure to read Chapters 6 and 10 before beginning the program.

Once we’ve established the basics, we’ll fine tune the program to adjust it to any of several special circumstances you may have, such as accompanying illnesses, severe insomnia, anxiety, fatigue, memory disturbance and so on. You will also later read what to do in the presence of other interfering conditions such as excess alcohol intake, sugar, premenstrual problems, stress, drug side effects, food allergies, physical illnesses, age, severe life problems or just hectic day-to-day living.

In my practice, where the results of the program have been excellent, I first look for and help my patients to eliminate as much as possible these other contributing conditions. The less interference with the basic program, the better.
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THE PROGRAM EXPLAINED

Our basic supplements are the amino acids L-tyrosine and L-tryptophan, vitamin B complex, vitamin C and a multivitamin mineral. Generally, for more predictable and more rapid absorption, I recommend all supplements be taken in capsule or powder form rather than in hard tablets. (The “L” and “D” in these names refer to the chemical rotation of the molecule.)

L-Tyrosine

Take 500 to 3500 mg when you get up in the morning, and again in the mid-afternoon.

This should not be taken with any protein food (such as milk, cheese, eggs, etc.), because you will absorb less of this amino acid if other types of protein are being digested at the same time. I recommend you take it with some water, juice or fruit and that you don’t eat anything else for at least thirty minutes.

Begin with 500 to 1000 mg twice daily for one week. (Children and the elderly should start with 500 mg once daily in the morning, and if an increased dosage is necessary, it should not exceed 1500 mg twice daily.) If you feel no improvement after one week, gradually increase your dosage, staying at each increased level for one week. In other words, if you started with one pill twice daily for the first week, you would raise it to two pills twice daily the second week as needed, and so on. Do not exceed the maximum daily dosages listed here. This warning is not because adverse effects have occurred at higher doses, but because little is known about the long-term effects of higher amounts.

With all supplements, including the amino acids, stop and stay with the amount that works for you and remain on this minimum effective dosage.

L-Tryptophan

Take 500 to 6000 mg at bedtime.

Tryptophan, too, should not be taken with any protein food, for the reason given above. There won’t be any problem if you take it with water or some carbohydrates. Actually, simultaneous ingestion of tryptophan with carbohydrates can increase the absorption of tryptophan. Note that if you have severe sleep problems, you must try to avoid night-time sugar, fruits and fruit juices as they will stimulate you when you want to be calming down. The exception is grapefruit, which has a sedative effect due to its high magnesium content.

Vitamin B Complex

Take 50 to 100 mg with breakfast and again with the evening meal. (The 50 to 100 mg refers to the amounts of B₁, B₂ and B₆ in the product. The other ingredients will often be in amounts other than 50 to 100 mg.)

Deficiencies of almost any of the B vitamins can cause depression, so their importance cannot be overemphasized (see charts in Appendix to Chapter Seven). When low mood or depression is complicated by circumstances such as severe stress, illness and certain dietary habits which have nutritionally depleted you, very large supplements of B complex vitamins may be necessary. The recommended dosages in the basic program are conservative and completely safe.

B complex vitamins are often yeast-based. To avoid the occasional problem with yeast, or other allergy reactions, I prefer that the B complex be yeast-free and hypoallergenic.

When you buy a multi-B vitamin, it contains the whole range of B complex vitamins. Different manu-
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Deficiencies of almost any of the B vitamins can cause depression, so their importance cannot be overemphasized (see charts in Appendix to Chapter Seven). When low mood or depression is complicated by circumstances such as severe stress, illness and certain dietary habits which have nutritionally depleted you, very large supplements of B complex vitamins may be necessary. The recommended dosages in the basic program are conservative and completely safe.
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When you buy a multi-B vitamin, it contains the whole range of B complex vitamins. Different manu-
facturers create products with slightly varying ratios of one ingredient to another. Don’t worry if what you find is not exactly what is listed here as long as the amounts generally parallel these. When possible, obtain a product with the vitamins B₁, B₂ and B₆ in what are called the coenzyme forms. The approximate dose ranges that follow should be available in a single supplement:

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Daily Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>B₁: Thiamine hydrochloride</td>
<td>50–100 mg</td>
</tr>
<tr>
<td>B₂: Riboflavin 5 Phosphate</td>
<td>50–100 mg</td>
</tr>
<tr>
<td>B₃: Niacinamide or niacin</td>
<td>30–100 mg</td>
</tr>
<tr>
<td>B₅: Calcium pantothenate</td>
<td>100–500 mg</td>
</tr>
<tr>
<td>B₆: Pyridoxal-5-phosphate</td>
<td>10–120 mg</td>
</tr>
<tr>
<td>B₉: Pyridoxine hydrochloride</td>
<td>50–100 mg</td>
</tr>
<tr>
<td>Choline</td>
<td>100–300 mg</td>
</tr>
<tr>
<td>PABA</td>
<td>30–100 mg</td>
</tr>
<tr>
<td>Biotin</td>
<td>100–400 mcg</td>
</tr>
<tr>
<td>Folic Acid</td>
<td>100–400 mcg</td>
</tr>
<tr>
<td>B₁₂</td>
<td>100–500 mcg</td>
</tr>
</tbody>
</table>

If your B complex vitamin does not contain vitamin B₆ in the pyridoxal-5-phosphate form, you will need to find this form of vitamin B₆ and add it to your program separately, 20 to 120 mg twice daily. Try to buy vitamin B₆ that is coated so that it will not be destroyed by stomach acid. (See appendix.) Vitamin B₆ is essential for the metabolism and usage of all proteins and amino acids.

**Vitamin C:**
Take 500 to 2000 mg in the morning and again with dinner.
This can be taken with your first food in the morning and with your evening meal. If you tend to be an allergic person, use a corn-free vitamin C compound.

**Multivitamin Mineral Capsule**
Take half the daily dosage in the morning and half in the evening.
For the purpose of implementing the basic program, here’s what to look for in a multivitamin mineral. Find the product that comes closest to these specifications and take half the daily dose with breakfast, half with dinner.

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Daily Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin A</td>
<td>10,000–25,000 IU</td>
</tr>
<tr>
<td>Vitamin B₁</td>
<td>25–100 mg</td>
</tr>
<tr>
<td>Vitamin B₂</td>
<td>25–100 mg</td>
</tr>
<tr>
<td>Vitamin B₃</td>
<td>25–500 mg</td>
</tr>
<tr>
<td>Vitamin B₅</td>
<td>25–500 mg</td>
</tr>
<tr>
<td>Vitamin B₆</td>
<td>25–500 mg</td>
</tr>
<tr>
<td>Vitamin B₁₂</td>
<td>100–1000 mcg</td>
</tr>
<tr>
<td>PABA</td>
<td>25–500 mg</td>
</tr>
<tr>
<td>Biotin</td>
<td>100–800 mcg</td>
</tr>
<tr>
<td>Folic acid</td>
<td>100–800 mcg</td>
</tr>
<tr>
<td>Vitamin E</td>
<td>100–400 IU</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>100–400 IU</td>
</tr>
<tr>
<td>Calcium</td>
<td>250–1000 mg</td>
</tr>
<tr>
<td>Magnesium</td>
<td>125–500 mg</td>
</tr>
<tr>
<td>Potassium</td>
<td>50–200 mg</td>
</tr>
<tr>
<td>Manganese</td>
<td>10–30 mg</td>
</tr>
<tr>
<td>Zinc</td>
<td>15–50 mg</td>
</tr>
<tr>
<td>Selenium</td>
<td>50–200 mcg</td>
</tr>
<tr>
<td>Chromium</td>
<td>50–200 mcg</td>
</tr>
</tbody>
</table>

A wide range is listed for each substance because vitamin manufacturers use slightly different combinations of dosages, and it might be difficult to find a
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- B₁: Thiamine hydrochloride 50–100 mg
- B₂: Riboflavin 5 Phosphate 50–100 mg
- B₃: Niacinamide or niacin 30–100 mg
- B₅: Calcium pantothenate 100–500 mg
- B₆: Pyridoxal-5-phosphate 10–120 mg
- B₈: Pyridoxine hydrochloride 50–100 mg
- Choline 100–300 mg
- PABA 30–100 mg
- Biotin 100–400 mcg
- Folic Acid 100–400 mcg
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If your B complex vitamin does not contain vitamin B₆ in the pyridoxal-5-phosphate form, you will need to find this form of vitamin B₆ and add it to your program separately, 20 to 120 mg twice daily. Try to buy vitamin B₆ that is coated so that it will not be destroyed by stomach acid. (See appendix.) Vitamin B₆ is essential for the metabolism and usage of all proteins and amino acids.

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<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Daily Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin A</td>
<td>10,000–25,000 IU (preferably in the form of beta carotene)</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>100–1000 mg</td>
</tr>
<tr>
<td>Vitamin B₁</td>
<td>25–100 mg</td>
</tr>
<tr>
<td>Vitamin B₂</td>
<td>25–100 mg</td>
</tr>
<tr>
<td>Vitamin B₃</td>
<td>25–500 mg</td>
</tr>
<tr>
<td>Vitamin B₅</td>
<td>25–500 mg</td>
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<tr>
<td>Vitamin B₆</td>
<td>25–500 mg</td>
</tr>
<tr>
<td>Vitamin B₁₂</td>
<td>100–1000 mcg</td>
</tr>
<tr>
<td>PABA</td>
<td>25–500 mg</td>
</tr>
<tr>
<td>Biotin</td>
<td>100–800 mcg</td>
</tr>
<tr>
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<td>Vitamin E</td>
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</tr>
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<tr>
<td>Calcium</td>
<td>250–1000 mg</td>
</tr>
<tr>
<td>Magnesium</td>
<td>125–500 mg</td>
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<tr>
<td>Potassium</td>
<td>50–200 mg</td>
</tr>
<tr>
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<td>10–30 mg</td>
</tr>
<tr>
<td>Zinc</td>
<td>15–50 mg</td>
</tr>
<tr>
<td>Selenium</td>
<td>50–200 mcg</td>
</tr>
<tr>
<td>Chromium</td>
<td>50–200 mcg</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th></th>
<th>MORNING UPON ARISING, WITHOUT FOOD</th>
<th>WITH BREAKFAST OR FIRST FOOD</th>
<th>MIDAFTERNOON WITHOUT FOOD</th>
<th>WITH DINNER</th>
<th>BEDTIME WITHOUT FOOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-Tyrosine capsules</td>
<td>500-3500 mg</td>
<td>50-100 mg</td>
<td>50-100 mg</td>
<td></td>
<td>500-6000 mg</td>
</tr>
<tr>
<td>L-Tryptophan capsules</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin B complex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multivitamin mineral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Use a quarter to half of the above dosages for children (preferably free of or with less than 30 IU of vitamin E); also give a multi-amin acid supplement as mentioned on page 74.

Use a quarter to half of the tyrosine and tryptophan dosages plus full vitamin dosages for the elderly.

Begin with a minimum tyrosine and tryptophan dosage for all.

See page 55 for multivitamin and vitamin B complex specifications.

DO NOT EXCEED RECOMMENDED DOSIS.
<table>
<thead>
<tr>
<th>Time of Day</th>
<th>Dose Schedule</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bedtime without Food</td>
<td>50-8000 mg</td>
<td></td>
</tr>
<tr>
<td>With Dinner</td>
<td>50-100 mg, 500-2000 mg, half the total daily dosage</td>
<td>Half the total daily dosage for the elderly, less than 30 IU of vitamin E; also give specific fixed formula for this kind of multsupplement. Some preparations may contain other ingredients besides those listed here. These should generally pose no problem. You may have noticed the exclusion of copper from this list, even though it is required for neurotransmitter formation. Copper deficiency is rare; more often we find a copper excess—which can create depression as one of its symptoms. If your multivitamin does contain copper, it should be no more than 500 micrograms (0.5 mg). Iron has also been omitted. If you are pregnant, menstruating, a vegetarian, poorly nourished, are over seventy years of age, or have any evidence of iron deficiency, use a multivitamin mineral which contains amino acid chelated iron in the amount of 50 to 200 mg. Unless you fall into one of these categories, use iron-free supplements. Please note that the amount listed on the side of the vitamin bottle is usually for anywhere from one to six capsules daily to provide the specified dosage. In other words, to get what you need you may have to take one to three capsules in the morning with your first food and the same amount with your evening food. You will notice I have said &quot;capsules,&quot; not tablets. You can also use powder or liquid forms, if available. Tablets can sometimes pass right through you, and not be digested at all. This was reported to me often enough for me to realize the best laid plans can go awry. Now I suggest the use of capsules whenever possible, unless you have a sensitive stomach and want very slow release to avoid the possibility of irritation.</td>
</tr>
<tr>
<td>Morning upon arising, without food</td>
<td>50-3000 mg</td>
<td></td>
</tr>
<tr>
<td>With Breakfast or First Food</td>
<td>50-100 mg, 500-2000 mg, half the total daily dosage</td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
</tbody>
</table>

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A CRITICAL NOTE

Before beginning this treatment, be sure to see Chapter 6 in order to adjust the program to your own special circumstances. These may include associated medical or psychiatric diagnoses or a preponderance of particular types of symptoms.

It is also important to follow the complete program outlined in this book, not just the supplement program in this chapter. In my office, I always attempt to evaluate the possible contributing situations because that enhances the chance for complete effectiveness.

A COMMON ADJUSTMENT TO THE BASIC PROGRAM

If after four to six weeks there are insufficient results, one of the first things I do is to add L-phenylalanine to the program. If a person initially has physical pain as a part of her depression, I add D,L-phenylalanine right from the beginning.

L-phenylalanine or D,L-phenylalanine

Use 1000 to 3000 mg in the midafternoon with food to replace the afternoon tyrosine dosage. Continue taking the tyrosine in the morning.

Actually, more research has been done on the use of phenylalanine than on the use of tyrosine for treating depression, but since my patients have generally had better results and better tolerance with tyrosine, I prefer to use it.

As Dr. Arnold Fox described in DLPA to End Chronic Pain and Depression, the D form of phenylalanine helps relieve pain by slowing the breakdown of pain-relieving endorphins in the brain.

L-phenylalanine can convert to tyrosine, but it also has other important metabolic pathways, one of which is to form a substance called 2-PEA (2-phenylethylamine). PEA is believed to be a neurotransmitter which is closely related to norepinephrine. The amphetamines, the stimulant Ritalin, and the antidepressant Tofranil all cause an increase of 2-PEA in the brain, and this is one mechanism through which they exert their excitant effects.

Some depressed people have insufficient 2-PEA and when this is so, phenylalanine may be necessary. Since PEA is more of a direct stimulant than norepinephrine, phenylalanine usage can give those people who don’t apparently need the extra PEA a “wired” feeling. This is one reason why it is not usually my first choice, but only needs to be added in approximately 10 percent of cases.

WHERE CAN I GET THE SUPPLEMENTS?

You may purchase the supplements at health food stores, at pharmacies, or by mail. I prescribe very specific products because I feel relatively certain of their quality and potency. On a number of occasions people who have been doing very well using a certain product have then run out and replaced it with an inferior product and relapsed. When we figure out what has happened and again use the original brand, they again improve.

When possible, buy encapsulated hypoallergenic supplements, which have no corn, yeast, sugar, dyes, preservatives or other additives.

The brands I like, which are available in most health food stores, are Country Life, Twinlab, Integrated Health, Alacer and Nutricology. Tyson and Associates products are available through pharmacies. All of these manufacturers produce high quality nutritional supplements. I am sure there are others as
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THE FORMS OF THE AMINO ACIDS

The chemical form of the amino acid is extremely important. For precursor loading to work properly, the amino acids must be taken in fairly large doses to make sure the digestive system manages to absorb enough of them. Further, they must be taken in what is called the singular "free form." This means they do not have to go through complicated digestive processes that may or may not occur, but are in the form that is ready for immediate assimilation and use by the body. This clearly bypasses the problem of poor digestion interfering with their usefulness. These free form amino acids are so pure and effective they are the official food supplement for astronauts, for U.S.S.R. parachute jumpers, for some professional athletes and for others who must have optimal performance. Extra protein, protein powders or protein supplements are not the same and will not give good results. If you use them for other purposes, they must be taken at a different time than the singular free form amino acids or they will interfere with the program.

There are many different kinds of amino acids on the market. Basically, four different grades are available:

The Feed Grade
The first is called the feed grade, because it is used in animal-feed supplements. Ironically, these are the amino acid tablets that are often for sale in health food stores.

The problem here is that when the amino acids are heated and compressed into tablets during manufacturing, they may lose some of their potency. Hard tablets sometimes go right through your body without breaking up or being digested, and it's not clear how much of the amino acids you are assimilating. Although they are the least expensive, I don't recommend feed grade supplements.

The Cosmetic Grade
This second grade of amino acid is used in shampoos, hair conditioners, face creams and so on.

The Pharmaceutical Grade
The pharmaceutical grade is a pure, potent amino acid, used by drug companies that manufacture amino acid-related products used in most high quality supplements.

The IV Grade
This grade of amino acid is pure enough to be used intravenously. It is more concentrated and, not surprisingly, is the most expensive. It is not readily available and is not used in oral supplements.

My Own Recommendation
My patients use the pharmaceutical grade with good, consistent results. Take it in powder or capsule form. Again, remember to look for what are called "free form amino acids."

WHO CAN BENEFIT?

Years of practice have convinced me that everyone who improves his diet and takes appropriate supplements will benefit. Therefore, anyone who reads this
well. Please refer to the back of the book for more detailed information.

**The Forms of the Amino Acids**

The chemical form of the amino acid is extremely important. For precursor loading to work properly, the amino acids must be taken in fairly large doses to make sure the digestive system manages to absorb enough of them. Further, they must be taken in what is called the singular “free form.” This means they do not have to go through complicated digestive processes that may or may not occur, but are in the form that is ready for immediate assimilation and use by the body. This clearly bypasses the problem of poor digestion interfering with their usefulness. These free form amino acids are so pure and effective they are the official food supplement for astronauts, for U.S.S.R. parachute jumpers, for some professional athletes and for others who must have optimal performance. Extra protein, protein powders or protein supplements are not the same and will not give good results. If you use them for other purposes, they must be taken at a different time than the singular free form amino acids or they will interfere with the program.

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**Who Can Benefit?**

Years of practice have convinced me that everyone who improves his diet and takes appropriate supplements will benefit. Therefore, anyone who reads this
book and selects those elements which relate to him will be helped—whether or not he is actually depressed.

But if you have low mood or depression, this treatment has a good chance of working if you take the supplements regularly and as directed. It will work even better and more lastingly if you are willing to change your thought and life patterns in ways we will discuss later. Such an approach requires that you take more responsibility and do more for yourself, but the payoff can be worth it.

For the unlucky ones prone to illness, getting well and staying well may require a consistent long-term application of will and behavior—with an occasional digression, of course.

Those with only intermittent low moods or with mild to moderate depression can also use this complete treatment safely and productively, following the precautions mentioned in Chapter 6.

Note: If you are severely depressed, not functioning, anxious and agitated, or have serious suicidal intent, you should see a psychiatrist in conjunction with following this program.

Other Uses

If you are in a situation where you need intense mental concentration, focus and output, short-term use of tyrosine or phenylalanine together with the B complex vitamins is excellent for this purpose. Such circumstances might include studying for and taking exams, presenting a case in court, or completing an important project.

When experimental animals are given drugs which decrease the amount of norepinephrine in the brain, the animals' capacity for learning is blocked. Then, when the animals are given an injection of norepinephrine, the ability to learn returns. This has many unexplored implications for the use of norepinephrine precursors for improving learning.

When you use amino acids for this purpose, only use them intermittently. If you are not depressed, your amino acids are likely already in balance. You do not want to unbalance them by sustained supplementation. Generally I recommend against any such repeated or prolonged supplementation in the non-depressed individual. However there are balanced amino acid formulas which are safe for long-term use in these instances.

How to Begin?

How you launch the program really depends upon how motivated you are, how easy it is for you to follow a consistent program and how eager you are to feel better.

If you are the “gung ho” type and want to plunge in totally, you can buy everything at once and get started. Generally, though, it is best to begin slowly, adding one new supplement daily until you are on the full program. This allows your body to adjust gradually to the substances and also lets you know which, if any of them, doesn't agree with you (this rarely happens).

How Soon Can I Expect Results?

You may respond dramatically and immediately to this treatment, or it may involve several months of gradual improvement. If your problem is merely low moods, you may have a rapid and consistently lasting
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HOW SOON CAN I EXPECT RESULTS?

You may respond dramatically and immediately to this treatment, or it may involve several months of gradual improvement. If your problem is merely low moods, you may have a rapid and consistently lasting
improvement as early as within one day of starting the treatment program. Most of my patients have a partial or complete response within one to three weeks of the initiation of total treatment. Researchers using single substances such as tyrosine or phenylalanine (not a complete program as in this book), have usually seen a response in those with depressive illness by three weeks of treatment.

Often, others will notice improvement in your condition before you yourself become aware of it. This is especially true if you have been severely depressed. Almost consistently, depressed hospitalized patients are seen by others to be getting better before they themselves notice the change. It takes a while to sink in, since you are so accustomed to feeling bad. A good way to measure and compare your progress is to take the self-rating test in Chapter 2 once a month for several months after starting this program.

I had personally been on the nutritional program for three or four months before I realized one day I had been having a general sense of well-being for some time. Then I made an agreement with myself never ever again to even consider the option of suicide, as I had done on many previous occasions. No matter what came my way I would search for positive ways to cope rather than waste my energy in these destructive escape fantasies.

Having made such a decision, it has been easy to stick with it. At times, I find myself truly happy on all levels. I could never feel that way before. Even at best, something inside or outside was always interfering. I am no longer dependent on the outer world for the maintenance of my mood. Instead, I depend on my thoughts, attitudes and biochemistry, my inner world. It's amazing, when this happens, how well outside life falls into place.

When you begin to feel better it may come in starts and stops. If all your days have been bad, you'll begin having some partially good days. At the beginning you will swing back and forth in your moods. Gradually the shift will be toward more of the partially good days. Eventually you'll have *totally good days*, after which your mood will become stable and up most of the time. The transition usually takes place in this gradual fashion. Those who have been depressed for years will need to feel good for a period of time before they trust and feel safely rescued from low moods.

You'll find yourself elated that you're feeling better, and then when a low day recurs, you may become frightened and discouraged, believing the mood monster has returned. Avoid this discouragement: the mood angel will come again to lift your spirits and she will visit more and more frequently. Do not give up or abandon the program. It is totally natural for your course to fluctuate until you have returned to a state of consistent well-being. This pattern is the one most often experienced in those recovering from a “depressive illness.”

One patient with seventeen years of chronic depression under her psychological belt refused to believe she was really free of her depression until she had passed four consecutive months with no evidence of low mood. When she began the program, she said she was “skeptical” but desperate and didn't want to go back on medication. In the first-month follow-up visit she felt much less depressed but felt “it is too soon to trust it.” The second month, she continued to feel well and was surprised, still not daring to get her hopes up too much. The third month was the same.

Finally, on the fourth-month visit, she said, “You’ve convinced me, I’m a believer. I haven’t felt this good for this long in fifteen years.” She is a mental health
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HOW LONG SHOULD I CONTINUE THIS TREATMENT?

When a depressed person is given the usual antidepressant drugs, the treatment generally continues for six months after her symptoms have disappeared. Subsequently, the dosage is gradually reduced. But some people must continue using traditional antidepressant medications for years.

I use a similar approach with nutrients. I advise people who have severe depression to stay on the program longer than others. If you have occasional low moods or one of the moderate forms of depression, you might start tapering the dosage after three or four months, until you find the minimum amount you can take that still leaves you feeling good. If you have suffered from severe or chronic depression, continue the treatment for six to eight months after you feel well. Then gradually taper off. Some people have to stay on a minimum dosage indefinitely, which should and can be accepted freely, without guilt or concern.

This has been the case with several of my patients. Janet, who is a nurse, has been taking the supplements and feeling well for several years, after sixteen previous years of depression. Each time she drops her nutrients below a specific dosage she has a relapse, but as long as she takes the minimum nutrients necessary for her, she maintains her sense of well-being. Certainly, for those who need such long-term chemical regulation, these substances, which are natural to the body, are preferable to drugs, foreign compounds which stress the system.

It shouldn’t be necessary for most of you to stay on this program for the rest of your lives even if you have a significant genetic predisposition to depression. After you have responded favorably and may even have tapered off the supplements completely, you can always return to them if your depression or low moods come back. You can also keep a supply of the nutrients on hand for use on those occasional low days when you wake up feeling a little under par.

You will do particularly well if you also use the supplementary suggestions later in this book for creating overall health and well-being.

HOW DOES THIS TREATMENT COMPARE WITH USUAL ANTidepressant MEDICATION?

It must be emphasized that if you are severely depressed, you may need traditional medication to begin with. Furthermore, if you are already on medication do not abruptly stop it. Follow the guidelines on pages 91–92. It is unwise to discontinue most of these medicines abruptly, for you can develop withdrawal symptoms such as nightmares, insomnia, anxiety, agitation, irritability and gastric distress. You can also precipitate a relapse of depression.

What are the advantages of a nutritional program versus the more traditional chemical therapies?

First, when both tyrosine and tryptophan are used, both the neurotransmitters norepinephrine and serotonin are increased. Antidepressant prescription medicines also increase the neurotransmitters, but most of them only increase one or the other, not both. Valuable time can be lost giving a drug that, for example, increases serotonin, when low norepinephrine is the problem. One way to determine which neurotransmitter is low or has missing precursors is to conduct an amino acid chromatography test.
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Second, many people who have only mild or moderate depression, or only intermittent low moods will not want to take a medication with many possible side effects. After all, if you only feel low five or ten days out of every month, or if your moods fluctuate during the day, why take a daily prescription medication?

Third, some chronically depressed people have a relapse every time they try to decrease or stop their medication. Hence, they remain medicated for years. The likelihood of such relapses is high in those who suffer from the actual “illness” of depression. Some studies report a relapse rate of 12 percent in the first month after stopping treatment, 25 percent within three months, and 50 to 90 percent within two years. For these persons, the value of a good, safe nutritional program which they can continue indefinitely is quite obvious as an alternative to chronic long-term medication usage with its attendant side effects.

Fourth, this combination of amino acids and vitamins is usually effective within the first two weeks of use, compared to the four to six weeks usually required for most antidepressant medication to take effect.

Last, there is a considerable difference in side effects between the two methods.

It bears repeating that some severely depressed people who are already using medication must, initially, continue to follow that line of treatment even while beginning this one. If your doctor wants you to continue your medication and do nothing else for the time being, then follow your doctor’s advice and later, when you are improved, implement this program as a guard against relapses. If the severity or associated symptoms of your depression warrant strong sedative medication to quell extreme agitation, or associated psychotic thinking, you need to be willing to take the medication and not be put off by the possibility of side effects.

**Possible Side Effects of Traditional Antidepressants**

In medical practice, the risk of side effects from medication is always weighed against the risk of the effects of the illness itself. Since the mortality associated with the diagnosis of major depression is 15 percent, physicians and patients alike have been willing to tolerate side effect risks. Fortunately, many of the side effects are benign and transient. A list of possible side effects from prescription antidepressants follows.

1. Orthostatic hypotension (This is most common and is described as a delayed adjustment of the blood pressure to changes in body position, especially abrupt changes. It can cause dizziness sometimes associated with falls, especially in the elderly. Also, other blood pressure changes may occur, such as elevated blood pressure.)
2. Sedation and fatigue
3. Sleeping too much
4. Constipation
5. Dry mouth
6. Blurred vision
7. Impaired orgasm or delayed or painful ejaculation
8. A switch to mania
9. Temporary thinking defects, especially related to memory and concentration
10. Palpitations and rapid or irregular heart beat
11. Sensitivity to the sun
12. Itching and skin rashes
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12. Itching and skin rashes
13. Weight gain
14. And, very rarely: urinary retention, a paralytic response of the small bowel, glaucoma or global depression of blood cells

All these risks increase in the treatment of the elderly and additionally complicate the treatment of children. Also, these medications must be administered with caution to those with epilepsy, Parkinson's disease, heart rhythm problems, glaucoma, high blood pressure, liver insufficiency and certain urinary disorders. The newer classes of antidepressants are slightly less risky, but still present a number of possible problems.

Generally, quantities of antidepressants greater than 1250 mg at once can be fatal. This is about six to eight times the therapeutic dose, and ironically a number of depressed persons commit suicide with their antidepressant medication before the medication has had time to exert a positive effect.

Because of such side effects most doctors, including myself, have had to discontinue or change antidepressant medicines on a number of occasions. Yet, by contrast, in all the years I have been treating depression with amino acids, I have never had to discontinue the treatment because of side effects. I have, at most, had to modify the tyrosine and phenylalanine usage in cases of preexisting high blood pressure.

**Possible Side Effects of the Nutrient Program**

**Side Effects of L-Tryptophan**

1. Slight morning drowsiness
2. Stomach queasiness or mild nausea
3. Erratic dreams

Since we are discussing a relatively new treatment, let’s go over these possibilities in more detail, so as to be on the safe side. Bear in mind, though, that my patients have not experienced effects other than drowsiness. Other researchers, however, have reported them as possibilities.

In Great Britain tryptophan has been used over a period of many months to treat depression. Daily doses of 6000 to 9000 mg have been taken with almost no side effects reported and, even more important, no withdrawal symptoms on abrupt discontinuance.

Tryptophan is rapidly metabolized and cleared from the body so there is no toxic buildup over time. Thus, side effects are extremely rare, other than a slight, short-lived morning drowsiness in some patients who have taken it late the night before. This drowsiness is trivial compared to the heavy sedation experienced with some of the traditional antidepressant medications. No patient under my care has had to stop tryptophan because of side effects. There have been reports that larger than usual doses on an empty stomach can sometimes produce mild queasiness or nausea. Rarely, very sensitive people experience an increase in dreamlike sensations as they are falling asleep, or have erratic dreams while sleeping. Other physicians who prescribe L-tryptophan have reported that a few of their patients experience slight headaches or transient agitation. Some studies, on the other hand, report that tryptophan suppresses migraine headaches.

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4. Slight headaches
5. Transient agitation
6. Blood pressure changes in a few who have a preexisting high, unstable blood pressure and who are over sixty years old

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we advise that nobody who has taken MAO inhibitor drugs should use tryptophan within ten days.

Researchers report that tryptophan taken alone without B complex vitamins can produce dizziness, light-headedness and blurred vision in a few cases. My patients have not experienced this, but neither have they taken the tryptophan without the B complex vitamins. It's important to take the B complex vitamins both because they eliminate this possibility and also because they improve the tryptophan metabolism.

There are conflicting studies and reports on how tryptophan affects blood pressure. Animal studies indicate it has a slight blood pressure lowering effect, yet a few humans, especially those over sixty who already have high blood pressure, occasionally experience a transient increase in heart rate and blood pressure with the use of extra tryptophan. This effect has not been noted in those with normal blood pressure. Those few who do have this reaction are a small subgroup who apparently metabolize tryptophan unusually or may already have excess serotonin in their brains for some other reason. Again, I have not noted this problem in my practice, but it is a possibility.

If you have high blood pressure, you can ask your doctor to measure your blood and urine for free-circulating serotonin levels. If they are low to average, you are likely to be safe in taking the tryptophan. Begin at the lowest dose and gradually increase as needed. If the serotonin is high, refrain from taking the tryptophan, but follow the rest of the program. It may work quite well for you.

**Side Effects of L-tyrosine**

I personally have not come across any side effect problems with L-tyrosine, though there is a report of one case of a manic, over-stimulated episode being attributed to the substance. If you are manic-depressive, there is always the risk of inducing a manic state whether you take traditional antidepressant medications or the antidepressant nutrients. In any event, for patients diagnosed as manic-depressive nothing, including this program, should be undertaken without a doctor's strict supervision.

Tyrosine has been given safely, but cautiously, to those with heart disease and to those taking what is known as "beta blocker" medicine, circumstances which make classical antidepressants risky.

Though there is some worry about its potential for increasing already high blood pressure, a double blind study suggested the opposite. Because it increased norepinephrine in certain areas of the central nervous system, tyrosine actually produced a decrease in blood norepinephrine concentrations in the rest of the body. The researchers concluded that tyrosine could possibly be of benefit in treating certain cases of high blood pressure.

**Side Effects of L-phenylalanine**

L-phenylalanine is considered to have a slight potential for creating changes in blood pressure in a few people already suffering from severely high, erratically fluctuating blood pressure. Two such patients of mine who were monitoring their blood pressure levels several times daily noted a ten point increase in their blood pressure once to two hours after taking this amino acid. This is not a dangerous increase and the levels returned to normal an hour or two later. Other researchers have not observed this effect, and Dr. Arnold Fox reports the safe use of the form called D,L-phenylalanine on hundreds of his patients. All the same, this possibility does exist and if you have such blood pressure problems, use phenylalanine.
we advise that nobody who has taken MAO inhibitor drugs should use tryptophan within ten days.

Researchers report that tryptophan taken alone without B complex vitamins can produce dizziness, light-headedness and blurred vision in a few cases. My patients have not experienced this, but neither have they taken the tryptophan without the B complex vitamins. It's important to take the B complex vitamins both because they eliminate this possibility and also because they improve the tryptophan metabolism.

There are conflicting studies and reports on how tryptophan affects blood pressure. Animal studies indicate it has a slight blood pressure lowering effect, yet a few humans, especially those over sixty who already have high blood pressure, occasionally experience a transient increase in heart rate and blood pressure with the use of extra tryptophan. This effect has not been noted in those with normal blood pressure. Those few who do have this reaction are a small subgroup who apparently metabolize tryptophan unusually or may already have excess serotonin in their brains for some other reason. Again, I have not noted this problem in my practice, but it is a possibility.

If you have high blood pressure, you can ask your doctor to measure your blood and urine for free-circulating serotonin levels. If they are low to average, you are likely to be safe in taking the tryptophan. Begin at the lowest dose and gradually increase as needed. If the serotonin is high, refrain from taking the tryptophan, but follow the rest of the program. It may work quite well for you.

Side Effects of L-tyrosine

I personally have not come across any side effect problems with L-tyrosine, though there is a report of one case of a manic, over-stimulated episode being attributed to the substance. If you are manic-depressive, there is always the risk of inducing a manic state whether you take traditional antidepressant medications or the antidepressant nutrients. In any event, for patients diagnosed as manic-depressive nothing, including this program, should be undertaken without a doctor's strict supervision.

Tyrosine has been given safely, but cautiously, to those with heart disease and to those taking what is known as "beta blocker" medicine, circumstances which make classical antidepressants risky.

Though there is some worry about its potential for increasing already high blood pressure, a double blind study suggested the opposite. Because it increased norepinephrine in certain areas of the central nervous system, tyrosine actually produced a decrease in blood norepinephrine concentrations in the rest of the body. The researchers concluded that tyrosine could possibly be of benefit in treating certain cases of high blood pressure.

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and tyrosine cautiously, starting with a minimum dose and gradually increasing while, at the same time, monitoring your blood pressure.

With excess dosage, headaches, insomnia and irritability have also been reported occasionally.

**Is There Anything Else to Bear in Mind?**

Theoretically, taking certain amino acids separately could create an overall imbalance of amino acids in your body. So far, neither the medical literature on the subject, nor the clinical experience of physicians using this type of treatment has shown any signs of this kind of problem occurring at these suggested doses. If you were taking a dosage of more than 20 g (20,000 mg) daily, it might create an imbalance and consequent problems of some type, but we are using much smaller amounts.

Depression is an illness characterized by less than the usual amounts of amino acid end products in the brain. Therefore, those who are depressed generally need more of certain specific amino acids than the rest of us do. In other words, taking amino acid supplements when you are depressed is likely to balance an already unbalanced system, rather than the reverse. This hypothesis has been borne out by blood amino acid studies before and after treatment.

Add a multi-amino acid preparation (that includes seventeen to nineteen of the amino acids) if you continue taking the amino acids for more than seven to eight months, or when the single amino acids are used by those under fourteen years of age. Take them with breakfast and with dinner. If you have three or more alcoholic drinks or eat a lot of sugar daily, use a mixed amino preparation that contains an extra amount of glutamine, which helps to reduce alcohol and sugar cravings. Do not use a protein powder in these instances, use a pure form amino acid preparation.

**How Much Does All This Cost?**

The cost will vary depending on whether you respond to a minimal program, or have to take the top dosages, or have to add in substances mentioned in later chapters. The price also varies depending on where you purchase your products.

Considering the substances and dosage ranges in this chapter, the monthly cost should range from fifty to a hundred dollars. For those on antidepressant drugs, the average monthly cost is usually thirty to sixty dollars, depending upon whether a trade name product or a generic form is used. Thus, for slightly more cost, you can often achieve the same or better results and gain overall general improved health.

**One Last Question**

*If this treatment is as simple, safe and successful as you say it is, why aren't more doctors using it?*

In general, most doctors only feel comfortable using treatment methods with which they are totally familiar, or which have long been accepted as standard approaches. It's not surprising: nobody would be very happy if doctors were always trying new treatments on their patients with very little knowledge of the treatment or of its results.

What all this adds up to is expressed in the phrase, "What doctors are not up on, they are down on." That can be a pity, when a successful new field like using nutrition for actual treatment of various ills is just developing. It is unfortunate, in my opinion, that doc-
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tors who haven't had the chance to familiarize themselves with this new and comprehensive way of viewing disease discourage their patients from trying it. Nutritional medicine is really a subspecialty in itself. Information in nutritional science doubles every three to four years, so that keeping up with the immense flood of new research in the field demands considerable interest and time commitment. Nutritional medicine is not the same thing at all as what a "nutritionist" does, but is the application of general medical knowledge to the understanding of the interaction among nutrients, biochemistry, physiology, anatomy and genetic patterning.

In a 1985 report, *Nutrition Education in U.S. Medical Schools*, a committee found that some medical schools only require a total of three hours training in nutrition! The best of the schools surveyed only require 56 hours, which would be about one hour weekly for one year. This is almost negligible compared to the time spent on other subjects. They also found among the schools that teach the least amount of nutrition are some that have the best reputations for superior academic strength!

Doctors are already swamped by the amount of work they have to do just to keep up with their own practice and the developments in their own field of specialization. Learning an entirely new field is an immense undertaking. That is why your physician is unlikely to know that much about nutrition, unless he or she has gone out of the way to become knowledgeable in the field.

After all, the first serious medical text devoted entirely to the treatment of depression with amino acids and vitamins was published only in 1983. And, although there has been a recent rash of articles in the medical journals, most physicians are only now beginning to learn that this kind of treatment exists.

If you or your doctor are interested in taking a look at some of the research supporting this approach, you can check the appropriate sources in the bibliography.

If you are looking for a physician in your area who believes in and is familiar with nutritional treatment, you can check the appendix for a list of organizations with referral lists.

Many people who come to my office already have their own internist, rheumatologist or cardiologist, and so on. They confide to me that they are afraid to let their doctors know they are using nutritional treatment for fear the physician will object, ridicule them, or give them negative suggestions. Some patients even play a little game: they simply don't reveal they are using this kind of treatment until the doctors themselves comment on how well they are looking and doing.

Some of my patients never tell their doctors. One woman, who improved dramatically as a result of this kind of treatment, is very amused when she goes to her doctor for a checkup every now and then. He's made it clear he is not in favor of the idea of using nutritional supplements. But when he sees her, he always tells her, "I don't know what it is that you're doing, but whatever it is, keep doing it."

Still, more and more physicians are becoming interested in this rapidly expanding field and more and more are experiencing the satisfaction and benefits concomitant to nutrient therapy. Certainly, we might

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*Nutrition Education in U.S. Medical Schools*, a report from the National Academy of Sciences Press, 2101 Constitution Avenue, N.W., Washington, D.C.

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conclude that Thomas Edison saw the light when he said, "The doctor of the future will give no medicine, but will interest his patients in the care of the human frame, in diet, and in the cause and prevention of disease."