

BRAIN CHEMISTRY/FUNCTION & FEMALE DEPRESSION

Book Notes from Dr. Daniel Amen, *Change Your Brain, Change Your Life*,
and Dr. John Gray, *The Mars & Venus Diet & Exercise Solution: Create
The Brain Chemistry of Health, Happiness, and Lasting Romance*
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The brain is involved in everything we do. How we think, feel, behave, learn, work, and love stems from the actual moment-by-moment function of the brain. When the brain works right, we tend to work right. Protecting and optimizing brain function is essential to helping people be the best they can be. There are many ways to optimize brain function, including the proper use of supplements, vitamins, and medications; proper diet and exercise; decrease in stress (stress hormones damage brain function); and enhancement of relationships (Dr. Amen, forward to Dr. Gray's book).

DEPRESSION

The common symptoms of depression are associated with an **overactive limbic system of the brain** and **low levels of serotonin**. The limbic system is located in the center of the brain. Women have larger limbic systems, more susceptible to depression especially at times of significant hormonal changes as puberty, before menses, after childbirth, menopause (Amen, p. 42). The limbic system sets our emotional tone. When it becomes overactive, this is correlated with depression and anxiety (Gray, p. 44-45). The deficit of certain neurochemicals as serotonin and norepinephrine causes increased metabolism/ inflammation in the deep limbic system (Amen, p. 47).

1) Functions of the Limbic System (Amen, p. 37)

- sets the emotional tone of the mind
- filters external events through internal states (creates emotional coloring)
- tags events as internally important
- stores highly charged emotional memories (positive, negative, traumatic, abusive events)
- modulates motivation
- controls appetite and sleep cycles
- promotes bonding & social connectedness
- directly processes the sense of smell
- modulates libido

2) Problems in the Limbic System (Amen, p. 43)

- moodiness, irritability, **clinical depression**
- increased **negative** thinking
- negative** perception of events
- decreased motivation
- flood of **negative** emotions
- appetite and sleep problems
- decreased or increased sexual responsiveness
- social isolation

3) Serotonin

The best known depression relieving neurotransmitter (Gray, p. 90).

The neurotransmitter in the brain responsible for feelings of comfort, satisfaction, contentment, happiness, relaxation, and optimism (Gray, p. 63).

Symptoms of serotonin deficiency are: (Gray, p. 90-91)

- a. chronic distress and despair
- b. strong feelings of guilt and regret
- c. feelings of isolation, abandonment, and hopelessness
- d. overall indifference toward life and relationships
- e. inhibited sexual desire
- f. numbness or flatness of feeling
- g. inability to sleep at night
- h. lack of passion or interest
- i. resistance to having fun
- j. unwillingness to make a relationship work
- k. chronic fatigue
- l. little or excessive hunger

4) Putting it all together

Increasing serotonin levels help to relax an overactive brain (limbic system). With more serotonin, the limbic system relaxes and the symptoms of depression are alleviated ; experience calm, comfort, and fulfillment; negative thoughts subside; abandonment forgotten; freedom from past hurts; with the help of serotonin, a person is able to let go of the past and live in the present, with a healthy optimism about the future.

When there is a nutritional deficiency, an imbalance in brain chemistry results. Brain researchers have long known that symptoms of mental illness are the direct result of brain imbalances (Gray, p. 43). The **good news** is that regardless of what chemical changes are happening in a woman's brain, **balanced nutrition and exercise is the solution** (Gray, p. 126). Without the right diet and exercise, a healthy brain is unable to synthesize adequate amounts of neurotransmitters (such as serotonin & dopamine), and as a result it begins to appear as if it has been damaged. Research reveals the importance of certain amino acids to produce correct brain chemistry. The practical application of this research is called **activated amino acid supplementation** (Gray, p. 308). Healthy liver function (nontoxic) is also essential in processing of amino acids into healthy brain chemistry (Gray, p. 106) . The liver actually breaks down proteins into amino acids to produce serotonin and dopamine, or it can more easily take ingested amino acids to produce them.

5) Practical Nutritional Applications

Serotonin is primarily produced in the morning. By adding a healthy exercise and breakfast routine, women can produce plenty of serotonin every day. To produce serotonin, the body needs the nourishment provided by **amino acids** (Gray, p. 174). Have a **low calorie nutrient dense breakfast shake** containing carbohydrates, protein powder, flaxseeds for omega 3 fatty acids, enzymes, vitamins, ionic plant source minerals, water & ice (Gray, p.210-14) or Isagenix brand Isalean Shakes.

In addition to the amino acids provided by proteins (or taking amino acid supplementation) a woman needs to consume enough **good fat** for the production of serotonin; **omega 3 fatty acids** are essential for the processing of serotonin (Gray, p. 176). Good source of omega 3 fatty acids as a supplement would be flaxseed oil. (A good supplement for women would be the Isagenix™ Omega 3-6-9 capsules or “The Essential Woman” by Barleans - both contain flaxseed oil, evening primrose oil, lignans, and soy isoflavones). Dietary sources would be avocado, walnuts, fish such as tuna, salmon, mackerel, cod, pumpkin seeds, soybeans, kidney beans, flaxseeds & oil, hemp seeds & hemp oil, cod liver oil, sea vegetables such as nori, hijiki & kombu. (Gray, p. 260-61)

Eat **serotonin producing foods** (Gray, p. 255) or foods high in amino acid tryptophan:

Top 20 are: parsley, porcini mushrooms, seaweed (or kelp), dried dates, papaya, chanterelle mushrooms, yucca, tapioca, beer, onions, portobella mushrooms, mushrooms, pecans mustard greens, watermelon, celery, yellow mustard seed, rutabaga, spirulina, seaweed

Research has shown that **regular exercise** decreases serotonin deficiency symptoms such as depression and anxiety. (Gray, p. 98)

Dr. Amen’s nutritional prescriptions for depression include **omega 3 fatty acids, lean proteins and natural amino acids, complex carbohydrates (p. 81)**

Cleanse your liver so it can function properly and produce/process the amino acids which make serotonin . Have a **morning cleansing drink** containing trace minerals ,aloe vera, lemon juice & honey (OR Isagenix brand Fast Start Drink)

6) Notes on Prescription Medications

Prozac is a serotonin producing psychoactive drug (also Zoloft & others)

These drugs inhibit the body’s ability to produce natural and healthy levels of serotonin on its own; in addition to long list of **uncomfortable & dangerous side effects**, prescription drugs actually **disrupt your brain function** (Gray, p. 106)

These drugs **damage the liver** (which makes serotonin from amino acids)

These drugs **increase the stress hormone cortisol**. High cortisol is linked to elevated blood pressure, weight gain, inability to build muscle, obesity, development of diabetes, fatigue, depression, moodiness, and loss of sex drive.(Gray, p.107)

There are **natural alternatives** to help your body heal itself from the damaging effects of taking drugs. You need to be under the **supervision of a medical doctor** who is informed about the side effects and will monitor your changing symptoms. (Gray, p. 108)

It takes time for the brain to adjust and to produce healthy and balanced levels of serotonin on its own. By following the nutritional and exercise applications you will give your brain the help it needs to begin producing healthy brain chemistry without the usual withdrawal symptoms. **Feed your brain what it needs before going off drugs.**

If you are currently addicted to something or taking prescription drugs, even with the right supplementation it will take a couple weeks after you discontinue use to begin producing the necessary chemicals for normal mental health. **Have a healthy diet and exercise program in place before stopping drug use.** (Gray, p. 309)