



Xtra
Balance
Detox

What are Neurotransmitters?

The human brain makes over 100 chemical messengers called neurotransmitters - each programmed to relay special messages throughout the brain and body. Neurotransmitters are produced and stored in the brain cells (neurons), and are released into action when neurons are electrically activated. Neurotransmitters are responsible for every thought, mood, pain and pleasure sensation that we feel. They control our energy level, appetite and what foods we crave. Neurotransmitters regulate how well we sleep and even our sex drive.

How Neurotransmitters Work

The brain is composed of billions of branching tree-like nerve cells called neurons. They stretch out but never actually touch each other.

Neurotransmitters are small messenger chemicals that are produced and stored in the nerve cell endings.

When a neuron is activated, an electrical current passes through the cell out to its branching nerve endings causing the release of its neurotransmitters. Neurotransmitters drift out into the space between cells (synaptic space). The neurotransmitters attach onto surfaces of neighboring neurons at special docking sites called receptors. When enough receptors are occupied, the cell is activated and an electrical current rapidly pulsates down the cell causing release of its neurotransmitters. This electro-chemical process passes on affecting millions of neurons in an instant.

When sufficient amounts of neurotransmitters are not available to dock onto receptors, the resulting brain electrical signal is weak. Signs and symptoms of neurotransmitter deficiencies occur.



Conditions Associated with Neurotransmitter Deficiencies

Proper amounts of neurotransmitters are necessary for maintaining optimal mental and physical health. Common conditions associated with serotonin/dopamine deficiencies include:

- Depression
- Anxiety and Panic Attacks
- Chronic fatigue
- Fibromyalgia
- Headaches-especially migraines
- Premenstrual Syndrome
- Appetite and Eating Disorders (binging or bulimia)
- Seasonal Affective Disorder
- Addictions
- Attention Deficit Disorder
- Chronic pain
- Insomnia
- Irritability and Anger Disorders
- Low motivation
- Compulsive Disorders
- Decreased sex desire

Neurotransmitter levels are highest in the morning and dwindle by late afternoon and evening.

Signs and Symptoms of Neurotransmitter Deficiencies

Neurotransmitter levels can be measured by laboratory testing. However, signs of deficiencies can be easily recognized clinically by the symptoms they cause. Our mood, behavior, attitude, energy level and certain thoughts toward food

(i.e. cravings) give important clues. The types of food we crave (starches, chocolate, or sweets) and times of day we crave them (late afternoon or evening) characterize specific neurotransmitter deficiencies.

Predictable 'slumps' in serotonin occur: daily around 3 p.m.; monthly 1-2 weeks before menses; and yearly in the fall and winter.



Your Neurotransmitter levels decline because of:

Prolonged Emotional or Physical Stress: The body depends on neurotransmitters to help deal with stressful experiences. Prolonged, chronic stress takes it toll on the "stress hormones and neurotransmitters. As stress continues, they become depleted.

Aging: Past age forty, 60% of adults have developed neurotransmitter deficiencies. Aging neurons make smaller amounts of neurotransmitters. Also, as we get older, the body does not respond as effectively to them.

Restrictive Dieting: Very Low Carb diets and other unhealthy eating habits limit the amounts of basic building blocks available for neurotransmitter synthesis. This is the most common cause of self-induced neurotransmitter deficiencies.

Studies from major universities, including Harvard, MIT, and Oxford, have documented that women on diets significantly deplete their serotonin within three weeks of dieting. This induced serotonin deficiency eventually leads to increased cravings, moodiness and poor motivation. These all contribute to rebound weight gain – the most common yet unfortunate consequence of dieting.

Dieting causes significant serotonin depletion in women.

Increasing neurotransmitter production during dieting is strongly encouraged to avoid yo-yo dieting. This is accomplished by taking dietary neurotransmitter precursor supplements during dieting

Dopamine works like an "on/off hunger switch" while serotonin adjusts appetite like a "dimmer switch" signalling fullness.

Abnormal Sleep: Poor sleeping habits interfere with critical neurotransmitter - hormone cycles. Many neurotransmitters responsible for proper sleep, especially



serotonin, are produced during REM sleep around 2-3 a.m. Serotonin converts to melatonin, the sleep hormone. When serotonin levels are low, melatonin levels will also be low. Disrupted sleep occurs and less neurotransmitters are produced causing a vicious cycle.

Certain Medications: Long-term use of diet pills, stimulants, pain pills, narcotics and recreational drugs can deplete neurotransmitter stores. The use of ma huang, ephedra and prescription diet pills (like phenfen, Fastin, phentermine) use up large amounts of dopamine and serotonin. This can result in "rebound" appetite control problems, low energy, unstable mood and sluggish metabolism.

Neurotoxins: Heavy metal toxicity, chemical pesticides, fertilizers, certain cleaning agents, industrial solvents, and recreational drugs cause damage to the neuron and decrease neurotransmitter production. Excess caffeine, nicotine and alcohol can be neurotoxic. The street drug, Ecstasy, has particularly concerning neurotoxic effects. It can completely drain serotonin and permanently damage the neuron making treatment impossible.

Hormone Imbalances: Hormones influence neurotransmitter release and activity. If hormones are deficient or are off balance, neurotransmitters do not function well.

Women crave carbohydrates more than men.

Premenstrual Syndrome (PMS) is a classic example of how low serotonin levels can temporarily shift each month. Mood, appetite and sleep can be severely disrupted one to two weeks before the menstrual cycle. Another neurotransmitter imbalance occurs during menopause when dramatic changes in mood, energy, sleep, weight, and sexual desire occur.

Women have 1/3 less amounts of serotonin than men.

Genetic Predisposition: Some people are born with a limited ability to make adequate amounts of neurotransmitters. They exhibit deficiency symptoms as children or young adults and



often have relatives who suffered from significant mental illnesses. As they get older, affected individuals experience even more profound symptoms and debilitation.

How to Improve Neurotransmitter Deficiencies:



XTRA BALANCE NEUROTRANSMITTER SUPPORT is a natural, safe nutritional method of increasing neurotransmitter levels.

Supplement Use: Take one to two Xtra Balance products in the morning and and before lunch. one to two in the afternoon and evening. Do not exceed Xtra Balance recommendations per day. Allow at least 4 hours between doses.

LONG TERM SUPPORT of neurotransmitters may require 4-52 weeks of consistent use. The time required varies between individuals. Those with significant depletions may take longer. Once a sufficient effect is achieved, it may be maintained by taking one to two Xtra Balance products per day.

Frequently Asked Questions

1. How can Xtra Balance products help me lose weight?

Xtra Balance product help people stay on their diets by increasing the brain's natural appetite, mood and energy regulators, the neurotransmitters serotonin and dopamine. These neurotransmitters are critical to sustaining motivation, balancing mood, managing hunger and controlling cravings.

2. What are the benefits of Xtra Balance products for dieting?

Studies from several major universities, including Harvard, MIT and Oxford, have discovered that dieting lowers serotonin levels in women, making mood and appetite control more difficult as dieting continues. This dieting-induced serotonin deficiency is a major reason why maintenance after weight loss has been unsuccessful for most dieters. Support of serotonin and dopamine during and after dieting are necessary to avoid yo-yo dieting.

3. What is in Xtra Balance products?

Xtra Balance products are **professional grade** dietary supplements that contain amino acids, vitamins and minerals needed as basic building blocks for neurotransmitter production. These ingredients are compounded in proprietary blends. They absorb very slowly and has a very low glycemic index making Xtra Balance

products suitable for diabetics. Xtra Balance products do not contain ephedra or artificial stimulants.

4. How long does it take to get results with Xtra Balance products?

Laboratory measurements of serotonin and dopamine while using Xtra Balance products showed increasing levels beginning within 20-30 minutes of dosing. Many people reported feeling effects during the first hour. Clinical studies on symptom improvement showed that within the first week of taking Xtra Balance products 40% improvement was reported, within 2 weeks 50% of symptoms improved and by 8 weeks 76% of symptoms improved. Symptom improvement time varies because individuals with significant neurotransmitter depletions require longer "refilling" time before feeling effects.

5. How long does a person have to take Xtra Balance products?

After initial stores of neurotransmitters are re-established and symptoms are under good control (usually within 4-16 weeks), doses of Xtra Balance products can be reduced for daily maintenance. If more neurotransmitters are needed, such as with continued dieting, chronic or new stresses, premenstrual, mood and appetite shifts during smoking cessation or with seasonal mood changes, the doses of Xtra Balance products should be readjusted to meet these new demands. Neurotransmitter deficiency symptoms reoccur if replacement does not keep up with the

demands.

6. Can neurotransmitters be replaced by changing one's diet?

Dietary improvements are certainly helpful but may not completely correct neurotransmitter deficiencies. Foods vary in amounts of their amino acid content and their absorption may not be predictable. Tryptophan, the precursor for serotonin, is the most difficult amino acid to get from food. In order to absorb the quantity of amino acids from food to equal that of Xtra Balance products, one would have to eat protein equivalent to a 32-ounce steak or 3-dozen eggs 3X each day. These amounts are not practical nor nutritionally recommended.

7. Who should not take Xtra Balance products?

Xtra Balance products have not been studied during pregnancy, nursing or in children under age of puberty and so are not recommended for these groups.

Individuals on blood pressure medication or antidepressants are advised to discuss the use of neurotransmitter dietary supplements with their physician before taking them.

8. Are there any medications that interfere with Xtra Balance products?

There is a very low, yet theoretical possibility that dietary supplements that support neurotransmitter production could affect blood pressure or interact with certain antidepressants, called MAO inhibitors. In over

2000 clinic patients using neurotransmitter amino acid precursor supplements, no negative interactions with blood pressure or antidepressant medications were experienced. As an important precaution, however, individuals on any medication are advised to first discuss the use of dietary supplements with their physician before taking them.

9. Can Xtra Balance products raise serotonin and dopamine levels too high and cause problems?

Laboratory measurements of Xtra Balance products absorption have been done and Xtra Balance products safely increase brain levels of serotonin and dopamine at doses recommended. In over 2000 clinic patients using the supplements as directed, excess absorption was not encountered.

10. What are the side effects of Xtra Balance products?

When first starting neurotransmitter precursor supplements, some people complain of mild headaches, stomach upset, or mouth dryness. These symptoms are mild and temporary. They can be managed by: drinking plenty of fluids and eating small amounts of food before dosing.

Some people experience drowsiness initially (from the serotonin component). If drowsiness occurs, one should avoid driving or operating machinery.

Rarely, some individuals feel jittery or over-stimulated. These side effects are relieved by lowering the dose.

11. Can I decrease or stop my antidepressant medications after taking Xtra Balance products?

Xtra Balance products dietary supplements are not intended for treatment of any medical condition. Always consult your physician before adjusting or discontinuing any medication.

12. What are co-activators?

Co-activators are the important vitamins and minerals needed as catalysts in the neurotransmitter synthesis pathway. They activate enzymes that convert simple amino acids into complex neurotransmitters. The co-activators required include vitamins C and B's, calcium, magnesium and phosphate. During dieting, these co-activators may need to be supplemented.

13. Are Xtra Balance products addicting?

No. Xtra Balance products are dietary supplements and contain the same basic nutrients as found in our food – protein, vitamins and minerals. They do not contain any addicting substances.

14. How do Xtra Balance products differ from prescription medications like Zoloft, Paxil, Celexa, Lexapro, Prozac, or Effexor?

These medications are called serotonin or dopamine re-uptake inhibitors (SRIs or DRIs). They enhance the effects of the existing neurotransmitters but do not actually increase production. Xtra Balance products help the brain cells make more neurotransmitters.

15. What is the best way to take the ingredients?

Dissolvable capsules allow direct, immediate delivery of the neurotransmitter precursors to the brain. Lower doses and direct absorption significantly lessen the possibility of stomach upset and nausea commonly experienced with other pill forms.

Xtra Balance products capsules are convenient because they do not have to be timed around meals like diet pills do.

16. Do hormones affect neurotransmitters?

Hormones are chemical messengers secreted from glands located throughout the body. All of the hormones directly interact with brain chemistry but the most influential ones are:

● **Sex Gland Hormones:**

Estrogen and Testosterone (both women and men); Progesterone (women only) Imbalances of sex gland hormones in both men and women, affect neurotransmitter signaling. Mood instability, insomnia and fatigue, often blamed on menopause or 'mid-life' crisis occur as a result of decreasing sex hormones and poor neurotransmitter support. PMS (premenstrual syndrome) is a classic example of how neurotransmitters (serotonin) shift as hormones shift cyclically.

● **Insulin:** controls blood and brain glucose (sugar) levels. Glucose is needed by all cells, especially brain cells, for energy to function. Erratic fluxes in blood glucose need to be avoided. Eating at regular 4-6 hour intervals, eliminating refined carbohydrates and having

adequate protein at each meal all help to stabilize blood glucose. About 75% of overweight Americans have a condition called Insulin Resistance in which an exaggerated insulin response occurs when excess carbohydrates are eaten. Insulin Resistance is responsible for weight gain, high blood pressure, high cholesterol, high triglycerides, and adult-onset diabetes. The step-by-step eating method outlined in the best-selling book, *The Insulin Resistance Diet*, is strongly recommended. Written by board-certified weight loss specialist Cheryle R. Hart, M.D. and registered dietitian, Mary Kay Grossman, this life-long eating method has been successful for over 3000 insulin resistant patients treated in their medical weight loss clinic.

● **Thyroid:** Optimal thyroid function is required to properly circulate neurotransmitters in the brain. Low normal or borderline low thyroid levels are not optimal especially during high stress. Selenium and tyrosine supplements promote thyroid health.

● **Adrenal Gland Hormones:**

Cortisol and DHEA (dehydroandrosterone) are critical stress reacting hormones produced in the adrenal glands located on top of the kidneys. They are the 'fight or flight' hormones. They signal appropriate neurotransmitter release from the brain to help the body cope with stress. When stress becomes prolonged, cortisol and DHEA levels deplete and neurotransmitters do not receive adequate messaging. Symptoms of neurotransmitter

deficiencies occur when the adrenal glands are fatigued.

Serotonin & Dopamine Effects

What SEROTONIN Does:

- Calms
- Promotes positive feelings of well-being
- Signals fullness when eating (satiety)
- Serenity and 'after-glow' following sex

What DOPAMINE Does:

- Energizes
- Increases motivation and ambition
- Signals hunger (like an on/off switch)
- Promotes sexual desires, arousal and climax



DOPAMINE Increases When:

- Drinking or eating foods high in caffeine
- Taking showers
- Listening and/or dancing to loud, fast music
- Gospel singing
- Fast rhythmic dancing, like rock-n-roll
- Laughing
- Going on thrill rides; Driving fast
- Smelling or seeing delectable foods
- Drinking alcohol and getting a 'buzz'
- Watching or participating in competitive sports

High protein/very low carbohydrate diets deplete serotonin, causing more depression, bingeing, PMS and seasonal affective disorder in women.

Other well-studied neurotransmitters include: Glutamine, which stabilizes brain sugar levels and helps control against low blood sugar (hypoglycemia); Endorphins are powerful mood boosters and pain relievers; GABA (Gamma-aminobutyric acid) is a natural muscle relaxant.

Dopamine works like an "on/off hunger switch" while serotonin adjusts appetite like a "dimmer switch" signalling fullness.

Two highly profiled neurotransmitters controlling mood, food, and energy are serotonin and dopamine. Serotonin is responsible for our feelings of well-being, serenity, mood stability and appetite satiety (fullness). Dopamine is necessary for mental concentration, alertness,

high energy, motivation, hunger regulation and sex drive.

Low levels of serotonin and dopamine reduce immune defenses, making a person more susceptible to infections, allergies and cancers.

Hormone & Neurotransmitters

Hormones are also important messengers but unlike neurotransmitters, hormones are produced in glands throughout the body. (ovaries, thyroid, pancreas, adrenals, pituitary). Hormones and neurotransmitters interact by passing messages back and forth. The main hormones affecting neurotransmitters include:

Insulin - The hormone insulin regulates blood and brain sugar (glucose) levels. Healthy brain function requires having a constant level of glucose at all times. Erratic swings in blood sugar and insulin levels, mainly caused by unhealthy eating, lead to hypoglycemia (low sugar levels) and poor brain performance. Correction of eating patterns is strongly

encouraged by: eating at more regular intervals (every 3-6 hours), including adequate dietary protein and complex carbohydrates with each meal or snack, and avoiding excesses of processed or simple carbohydrates.

Thyroid - In addition to its effects on metabolism, optimal thyroid function is required to increase blood circulation in the brain.

Adrenal Hormones - Cortisol and DHEA

(dehydroandrosterone) are critical stress-reacting hormones. They are produced in the adrenal glands, which lie atop of each kidney. Cortisol is the main hormone that recognizes stress and signals appropriate neurotransmitter release. This 'fight or flight' reaction is an essential survival response of all mammals. When prolonged stress occurs (chronic physical or emotional stress) high demands on cortisol and DHEA eventually deplete them. Neurotransmitters do not receive proper signals and deficiency symptoms occur. Immune defenses also weaken with chronic stress.



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