

The Four Aspects of Brain Health

People usually don't start thinking about the health of their brain until they notice theirs isn't functioning as well as it used to. It may start by you having trouble remembering names, phone numbers or addresses. Maybe you can't concentrate as well on the task at hand as you did in the past. You may also notice that you are having more sleep disorders or are feeling depressed more often. These are signs that something may be off in your brain chemistry.

The brain is the greatest generator of electricity in the human body. The brain sends electric currents throughout the entire body through brain chemicals called neurotransmitters which then send energy and information to the rest of your cells, glands and organs. It's really amazing how perfectly designed the body is when you look closely – the only problem comes when we poison the cells of the body and starve the body of nutrients necessary to fuel cellular regeneration. There are a growing number of toxins that are entering our environment which destroy your brain and nervous system's cells. These toxins are called excitotoxins which literally stimulate your neurons to death. Toxic chemicals such as MSG, nutra-sweet (aka as aspartame), hydrolyzed protein are now saturating our dietary landscape. Many of us put toxic chemicals on our hair and face which get into our brains and effect the production and function of neurotransmitters. For those of you who have come to my class on detoxification you know how commercial hair, skin and beauty care products are often loaded with toxic chemicals and metals including: lead, aluminum and mercury. All these toxins get into the body and poison the cells. My motto is that if you wouldn't eat the product don't put it on your hair, face or skin.

Attention deficit disorder is now one of the fastest growing diseases in our society and it can be traced to these toxins and nutrient deficiencies as well as a disconnected life from nature and spirit.

According to Dr. Eric Braverman, a leading clinician and researcher in the field of mind-brain-body medicine, brain health has four main aspects:

- memory
- attention
- personality and temperament
- physical health

The brain's four primary neurotransmitters: dopamine, acetylcholine, GABA, and serotonin each affect these four areas of brain health in different ways. For example, one measure for memory and attention is the speed at which the brain processes information. All four neurotransmitters affect speed; however, acetylcholine is most important for brain speed. A normal brain processes a thought in about 320 milliseconds (1/3 of a second). By the time our thinking is slowed down to four hundred milliseconds to process a thought we can no longer process logical thoughts. The average person loses 7-10 milliseconds of brain speed every decade starting at the age of 40. Numerous learning disabilities, neuro-psychiatric problems and other seemingly unrelated health problems are set in motion with slower brain speed. Remember this is just one of hundreds of health issues related to brain chemistry.

The question you may be asking yourself is that if brain speed is a result of neurotransmitter production – what are neurotransmitters made of? Each neurotransmitter is made of different building blocks called amino acids. I will review the specific nutrients and foods that boost each neurotransmitter later.

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The Brain's Four Primary Neurotransmitters

The brain is able to coordinate your movements, control your heart rate and breathing, and allow you to feel hunger, pain, happiness, sadness and all other emotions through the electrical charges which travel throughout your body. This electricity needs a path to travel on through the body. This path is made up of the cells of the central nervous system (which includes the brain and spinal cord) called neurons. Each of us is born with approximately 100 billion neurons which are continually dying and being created every second.

Electrical impulses sent as brain signals from the brain through the spinal cord to various nerve endings throughout the body travel from neuron to neuron via brain chemicals called neurotransmitters. Since neurons don't actually touch each other – there is a gap between each neuron, called synaptic gaps, neurotransmitters bridge these gaps and are, therefore, essential for the brain to communicate to the rest of the body. The electricity of the brain literally travels on the neurotransmitters between neurons throughout the body.

An overabundance or deficiency of any neurotransmitter can lead to health problems. An overabundance of a particular biochemical can flood the synaptic gaps, a deficiency will interrupt the brain signal getting to the part of the body that needs information.

When all four neurotransmitters are balanced one's brain is operating in top form, or as Dr. Braverman calls it you will be experiencing the "edge effect" – optimum brain function.

To determine your neurotransmitter nature and possible deficiencies contact my office by phone at 708.848.0254 or by email at jim@createvibranthealth.com and I will email you a comprehensive questionnaire which was developed by my leading researchers and clinicians in the field of mind-brain-body medicine. In my own case I found the questionnaire results were corroborated by other testing. I can review your results and customize a nutrition, supplement and lifestyle program that can be integrated into your current program to balance any minor or moderate neurotransmitter deficiency. If you have severe deficiencies I can refer you to a holistic medical doctor with more treatment options available for you.

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Dopamine

Beta brain waves which make you feel alert are created in the frontal lobes of the brain from neurons that produce the biochemical dopamine, which controls the electrical voltage of your brain. Dopamine works as a natural amphetamine and controls your energy, excitement and motivation.

Dopamine controls the following:

- blood pressure
- metabolism
- digestion
- voluntary movement
- intelligence
- abstract thought
- setting goals
- long-term planning
- Adrenaline production

Those individuals with a predominant dopamine nature who are balanced know what they want, are assertive, strong-willed, fast on their feet and self-confident. Dopamine personalities tend to like facts and figures are highly rational and are achievement oriented. Dopamine types gravitate toward occupations such as law, science, allopathic medicine, engineering, architecture and the military.

Producing too much dopamine can make one too intense, compulsive and driven. Overproduction of dopamine can also lead to violent behavior.

Dopamine deficiencies can lead to some of the following symptoms:

- Anemia

- Blood sugar instability
- Bone density loss
- High blood pressure
- Low sex drive and/or difficulty achieving orgasm
- Joint pain
- Thyroid disorders
- Aggression (paradoxically)
- Anger
- Depression
- Inability to handle stress
- Guilt or feelings of worthlessness
- Excessive sleep
- Mood swings
- Slow thought processing speed
- Forgetfulness
- Attention deficit disorder
- Hyperactivity
- Failure to finish tasks

Severe dopamine deficiencies are often treated with medications or hormones. Mild to moderate dopamine deficiencies can be balanced with diet, supplements and lifestyle modifications.

Physical signs of dopamine deficiency will be fatigue, sleeping long hours and still not feeling rested, your mind wandering, difficulty making decisions, craving caffeine, sexual dysfunction. Unconsciously you will try to compensate by avoiding stressful situations, drinking coffee to give you energy and drinking alcohol to bring you down. It is important once you realize this to correct your underlying dopamine deficiency with proper nutrition, supplementation and lifestyle modifications.

Each of the primary neurotransmitters has a nutrient precursor, and dopamine is derived from the amino acids phenylalanine and tyrosine. Co-factors such as folic acid, vitamin B6, iron, copper and vitamin C are important for phenylalanine to be absorbed.

Common foods that have high phenylalanine (p) or tyrosine (t) concentrations (in grams) include: Chicken 6-8 oz. 1.60 (p)/.4 (t); Cottage Cheese 1 cup 1.7 (p)/1.7 (t); walnuts 6-8 oz. 1.4 (p); Ricotta cheese 1 cup 1.35 (p)/1.5 (t); Turkey 6-8 oz. 1.6 (p)/.7 (t); Wild game 6-8 oz. 2.6 (p)/1.5 (t).

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Acetylcholine

The neurons in the parietal lobes of the brain, which are seated just behind the frontal lobes and on top of the temporal, produce the biochemical acetylcholine which is associated with alpha brain waves, which control brain speed. Acetylcholine is a lubricant which keeps the cells moist so that energy and information passes easily between cells. It is also the building block for the body's insulation called myelin, which protects the nerves throughout the body.

When acetylcholine levels are balanced your brain operates quickly, one is optimally creative and confident. People with acetylcholine natures are highly innovative, intuitive, flexible and impulsive. Acetylcholine types are very sociable and charming. Relationships are natural to you, unlike dopamine dominants who often have trouble communicating their feelings. Occupations such as therapists, mediators, yoga teachers, social workers, writers, artists and advertising are natural occupations for the acetylcholine type.

Acetylcholine controls the brain's speed of processing information and is a natural moisturizer that helps cells retain fluids and maintain their membrane coating. All acetylcholine deficiencies lead to dehydration. It is possible to have an overabundance of acetylcholine in which case an individual may feel paranoid and feel

that life is taking advantage of them.

Acetylcholine deficiencies can lead to some of the following symptoms and diseases:

- Alzheimer's disease
- Anxiety
- Dry mouth and cough
- Excessive or frequent urination
- Inflammatory disorders
- Inability to carry out motor commands
- Osteoporosis
- Reading or writing disorders
- Multiple sclerosis
- Bipolar disorder
- Learning disorders
- Mood swings
- Memory disturbance
- Attention problems
- Impaired creativity
- Impaired abstract thinking

Left unchecked a mild to moderate acetylcholine deficiency can lead to a drop in overall health. First one will tend to avoid contact with other people, more tension in your relationships may develop, you will have difficulty managing your schedule, muscles and bones will start to ache, sex will become less enjoyable due to vaginal dryness or difficulty with maintaining an erection. These can be some of the warning signs that acetylcholine levels are dropping.

Nutrition is the key to re-establishing healthy levels of acetylcholine. The B vitamin choline is converted to acetylcholine. Foods highest in choline are: egg yolk, meat, liver and whole grain cereals. My experience with myself and my clients have been that adding 2-3 raw eggs to a fruit smoothie with added flaxseed oil or ground flaxseed meal is a great way to boost numerous nutrients including choline and important antioxidants like vitamins C and E. These antioxidants as well as alpha lipoic acid protect the cell membranes of brain cells from being damaged by toxins and internally generated stress chemistries. One client of mine reversed the vast majority of his MS symptoms by utilizing a diet that included many of these raw-egg shakes.

Other acetylcholine boosters include: phosphatidylcholine and phosphatidylserine – both modified amino acids which help raise acetylcholine levels; DHA – the omega 3 fatty acid; the amino acid taurine; acetyl – L-carnitine and korean ginseng.

Acetylcholine levels can become depleted from the following sources:

- Aluminum toxicity
- Violent and pornographic films and TV shows
- PCBs, chemical fertilizers, pesticides and electromagnetic fields
- Lack of aerobic exercise

Like other neurotransmitter deficiencies a comprehensive program focusing on diet, appropriate supplementation, exercise and lifestyle is the key to balancing your acetylcholine levels.

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GABA

Neurons in the brain's temporal lobes produce the biochemical GABA and their resulting theta brain waves. GABA is the brain's natural valium providing calmness and aiding in the production of endorphins. When in

balance the GABA dominant person is characterized by stability and reliability. These people are team players who thrive on organization and long-term relationships. Homemakers, administrators, technicians, nurses, security officers, accountants, bus drivers are all ideal occupations for GABA natured people. GABA natured people are nurturers and are tend to be very traditional. 50% of the world's population is GABA dominant so it is very important to understand how to balance this vital brain neurotransmitter.

An excess of GABA can result in a person not taking care of their own needs at the expense of nurturing others.

Early signs that you are may be GABA deficient include: feeling anxious, nervous or irritable. You may start to feel overwhelmed and stressed out. Other symptoms include: allergies, light-headedness, muscle aches. This is just the beginning of what could become serious health problems.

As with all the brain's neurotransmitters GABA deficiencies affect all four major domains of brain function. Physical, personality, memory and attention issues such as the following can present themselves as GABA deficiencies become more prominent:

- Backache
- Cardiac arrhythmias
- Chronic pain
- Constipation
- Headache
- Hypotension
- Insomnia
- Muscle loss
- Tachycardia or palpitations
- Urinary frequency
- Anxiety
- Depression
- Guilt or feelings of worthlessness
- Manic depression
- Phobias
- Rage
- Restlessness
- Poor verbal memory
- Difficulty concentrating
- Inability to think clearly

Do these symptoms sound common? Remember 50% of the world's population is GABA dominant and many millions of these are probably GABA deficient. Many of these symptoms appear in multiple neurotransmitter deficiencies because the neurotransmitters work in pairs. Dopamine and acetylcholine are the electrical "on" switches whereas GABA and serotonin are the electrical "off" switches.

If your GABA deficiency is mild to moderate you should be able to balance it with diet, supplements, exercise and lifestyle modifications. The amino acid glutamine is necessary for the production of GABA. Start with adding foods that are rich in glutamine (Mgs. Per 6-8 oz. serving) such as: almonds 10.3 g., bananas 220 mg., beef liver 6.5 g., brown rice 940 mg., halibut 7.9 g., oats 7.4 g., walnuts 5.4 g., spinach 680 mg..

Additional nutrients to add to your program include: inositol in doses of up to 2-12 grams per day, thiamine 400 mg. per day, niacinamide 100 mg. per day and Pyridoxine 10 mg. per day. Also taking either the herb valerian root or passionflower will boost GABA levels. GABA itself is generally not well absorbed; however, I have found a brand that is easily absorbed.

Aerobic exercise is very important for boosting either GABA, serotonin or acetylcholine. Dopamine is boosted

by weightlifting and other anaerobic exercise. Lastly GABA depletion is accelerated by toxic chemicals and metals, especially lead. A hair mineral analysis can tell you if your lead levels are elevated and be brought down with a metal detoxification program.

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Serotonin

The brain's occipital lobes are found near the rear of the brain and control vision and regulate your brain's ability to rest and resynchronize by producing the biochemical serotonin and its resulting delta brain waves. When your serotonin levels are balanced you can sleep deeply and think rationally, you can enjoy the simple things of life like eating a good meal or going for a walk in nature.

People with a serotonin nature know how to live in the moment. The serotonin type thrives on change and can be impulsive and is not easily deterred. For these people they must enjoy their work or they will start to look for a change. Serotonin types often have excellent hand-eye coordination and mental flexibility. Any occupation that involves operating the most advanced and expensive tools and technology is attractive to serotonin types such as: airline pilots, oil riggers, emergency vehicle drivers, and computer programmers. Increased serotonin levels can often lead one into the more glamorous careers of professional sports, acting and modeling. Serotonin dominance would be helpful for surgeons, chiropractors, detectives, investigators and those who deal with crisis intervention.

Serotonin types are often passionate about their relationships but are tend to be the most independent of the four types and have more difficulty in committed relationships. The serotonin type is interested in excitement whether it is skydiving, mountain climbing or an exciting passionate relationship.

Producing too much serotonin can make one extremely nervous and paranoid. Excessive levels of serotonin can lead to feelings of inadequacy and inferiority and contribute to sadness, depression, anger and desperation for interpersonal relationships which they are, ironically too afraid to attempt.

The early warning signs of serotonin deficiency manifest in symptoms of a disconnect between the mind and body. Some of the symptoms of serotonin deficiency include:

- Allergies
- Hallucinations
- Muscle aches and pains
- Hypertension
- Palpitations
- Urinary frequency
- Light headedness
- Depression
- Codependency
- Loner behaviors
- Impulsiveness
- Phobias
- Rage
- Masochistic tendencies
- Shyness
- Memory loss
- Difficulty concentrating
- Perfectionism
- Restlessness

The early warning signs of a serotonin deficiency may start with a loss of enthusiasm for your favorite activity or a lack of enjoying your favorite foods. Insomnia and lack of productivity may be the next level of manifestation of serotonin deficiency. Finally physical symptoms like weight gain or skin breakouts will get your attention that you have a biochemical imbalance.

In the early stages of deficiency proper diet, supplementation and exercise can correct the serotonin imbalance within a couple of months. The starting point for replenishing your serotonin levels is to eat foods that have plenty of the amino acid tryptophan which the body converts to serotonin. The following foods have high amounts of tryptophan: 1 Avocado (.40 grams), 6-8 oz. of Turkey (.37 grams), 6-8 oz. of Pork (1.00 gram), 1 cup Cottage cheese (.40 grams), 1 cup of wheat germ (.40 grams), 6-8 oz. wild game (1.15 grams).

When you're deficient in serotonin you will crave simple carbohydrate such as pasta, alcohol and rice as well as salt, all of which promote the release of stored serotonin. It is important to limit one's alcoholic intake to several drinks per week. The following supplements are helpful for boosting serotonin levels (dosages are dependent on severity of deficiency): Calcium, Magnesium, Fish oils, 5-HTP, melatonin, Passionflower, Pyridoxine, SAM-e, tryptophan, Zinc.

In addition to increasing foods that have high amounts of tryptophan and adding some of the above supplements other serotonin boosting activities include: aerobic exercise 2-3 x per week for 20-30 minutes, prayer, yoga, meditation and chanting which all boost serotonin levels. Avoid foods grown with pesticides which have a particularly adverse effects on serotonin levels.

How to balance your brain chemistry using nutrition, exercise and lifestyle

I have made available for my clients the detailed questionnaire which clinicians have used to determine neurotransmitter dominance and deficiencies. I took the questionnaire recently and found that the questionnaire accurately identified my neurotransmitter deficiency which was corroborated by testing done by an associate of mine who is a naturopathic physician. If you want to take the questionnaire either call me or email me and I will email it to you. It takes about 30-45 minutes to complete. You would then email me the results and schedule a 45 minute consultation with me to review the results and I will make specific dietary, supplement and lifestyle recommendations based on the results of the questionnaire. My fee for the consultation is 180.00.

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