



## *Stress Notes*

# *Wellness Trading Post*

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## *Stress*

**Stress** is the body's response to internal or external **stressors**. A **Stressor** is an internal or external stimulus, condition, or circumstance that provokes a stress response. A stressor can be of physical, psychological, physiologically, emotional in nature (or a combination) such as a physical injury, a viral infection, over exercise, environmental or chemical pollution, job/family/social demands, responsibilities, financial challenges, drugs, alcohol, cigarettes, anger, fear, falling in love, passion, etc. Some types of stress are beneficial, and essential for a healthy life – they promote growth, health, strengthen our body, and prepare us to deal with the normal daily challenges of life. Others are harmful and can severely disturb the balance of our body physically, physiologically, psychologically, emotionally (or a combination there of), and affect our health and well-being.

The stress response is divided in 3 stages:

1. **Alarm reaction** or **fight-or-flight** response:  
Often it is a response to extreme stress or a life-threatening situation – the heart beats harder & faster to increase blood flow, the blood pressure increases; the breathing rate increases to bring more oxygen in; the blood flow is increased to the areas/organs needed for immediate survival (e.g. heart, lungs, muscles, brain) and decreased to organs that are not vital (e.g. digestive, reproductive, urinary and immune systems). The brain stimulates the adrenal glands to secrete adrenaline, which then promotes the release of glucose into the blood stream for fast, immediate energy, and increases the sodium retention for better muscle contraction and nerve transmission.
2. **Resistance reaction** – It is a long-term response to allow the body to deal with the stressor long after the *alarm reaction* is gone. The pituitary gland releases more hormones (e.g. ACTH, hGH, TSH hormones), and the adrenal cortex secretes aldosterone and cortisol. Aldosterone increases sodium retention to preserve body fluids and prevents body pH from lowering. Cortisol promotes synthesis of glucose (from protein and non-carbohydrate breakdown), vessel constriction, and discourages formation of new connective tissue (the healing process is slowed down). The hGH hormone promotes breakdown of triglycerides and conversion of glycogen to glucose, and the TSH stimulates the thyroid increasing the cell metabolism.
3. **Exhaustion** – If the body fails to deal with the stressor during the *resistance stage*, then over time, the body becomes depleted of resources. Long term exposure to high level of cortisol and other hormones leads to muscle wasting, weak immune system, ulceration of the gastro-intestinal tract, poor digestion, and reduced functioning or exhaustion of pancreas and thyroid glands.

### **Causes:**

Stressors can be pleasant or unpleasant, and their effects vary among people, and even within the same person depending on the conditions and circumstances at any given time.

- High standard on our behavior and attitude in life (placing type-A personalities at higher risk).
- The fast pace and high demands and challenges of our modern societies, can take a toll on our ability to be able to relax and release our daily dose of stress.
- Overly high standard in the workplace and life itself, leads to long work hours and a reduced or not restful sleep exposing the body to high physical and mental stress, and comprises our body's repair and maintenance that occurs when we sleep.
- Due to work/life demands, we eat on a rush and pay little attention to the nutritional quality of the meal, leading to nutrient deficit and nutritional stress.
- Instead of good quality time for play and relaxation, we seat in front of the TV to watch the news as a form of relaxation, bombarding our mind and spirit with the “bad” of our planet and very little good, feeding our anxieties and fears.
- Alcohol and cigarettes are often used as a way to relax, exposing the body to chemicals stress.
- Excess intake of coffee or other stimulant to fight off fatigue, preventing our body the time for growth or repair.
- Over exposure to environmental pollution and chemicals, causing sensitivities and allergies.
- TV bombards our mind with expensive gadgets to buy, raising our expectations of what a good standard of living is, creating a feeling of financial deficit and stress.

### **Signs & Symptoms:**

The effect of stress are can be lasting and is noticed as:

- Headaches.
- Muscle tension.
- Fatigue, insomnia.
- Reduce memory and concentration.
- Palpitation.
- Anxiety, depression.
- Mood swings, irritability, anxiety.
- Allergies.
- Poor or inefficient digestion (as cramps, bloating, and constipations, diarrhea),
- Frequent infections (e.g. colds/fluës, allergies, yeast infections).
- Chronic diseases (esp. cardiovascular diseases).
- In children, eating disorders are usually associated with stress.
- Panic attacks – involves the sudden appearance of at least 4 of the following:
  - Shortness of breath
  - Dizziness, unsteadiness, or faintness
  - Palpitation or accelerated heart rate
  - Trembling or shaking
  - Sweating
  - Choking
  - Nausea, stomachache, or diarrhea
  - Feeling of unreality, strangeness, or detachment from the environment
  - Numbness or tingling sensation
  - Flushing or chills
  - Chest pain or discomfort
  - Fear of dying, fear of “going crazy” of losing control.

## *Orthodox Treatment For Stress*

Often treated as anxiety, depression, or some other mood disorder and its diagnosis depending largely on the symptoms. The treatment varies from one disorder to another. Treatment may consist of behavioral therapy, drugs, psychotherapy alone or a combination.

### **Common Medications:**

- Benzodiazepine (long term may lead to physical dependency).
- Buspirone, an anti-anxiety medication (seems to have no physical dependency), may take 2 weeks to see effects.
- Antidepressant such as:
  - Selective serotonin reuptake inhibitors (SSRI) such as fluoxetine, fluvoxamine, paroxetine, sertraline,.
  - Monoamines oxidase inhibitors (MAOI) such as phenelzine, tranylcypromine
  - Tricyclic antidepressant such as amitriptyline, amoxapine, clomipramine, imipramine, nortriptyline

### **Antidepressant use and side effects:**

The brain communicates with itself through the use of special chemicals called neurotransmitters such as "serotonin" and "norepinephrine".

There is a strong correlation between the amount of these chemicals in the brain and a person's mood. If levels of these chemicals get too low people feel depressed. Medical doctors elevate these brain chemicals with the use of drugs.

There are many different families of antidepressants available today. The most common groups are:

**SSRI's** (Selective Serotonin Reuptake Inhibitors) These drugs increase the brain's level of serotonin, thus improving mood. SSRI's have also been shown to be useful in the treatment of obsessive-compulsive disorder and some forms of severe shyness.

They are generally well tolerated and effective. Some common SSRI side effects include: heartburn and drowsiness. They can sometimes produce a transient loss of appetite. SSRI medications can have drug interactions.

**Tricyclic Antidepressants** get their name from their chemical structure. This class of drugs is very effective in combating depression but is associated with troublesome side effects such as drowsiness, dry mouth and constipation. Tricyclic antidepressant medications can have drug interactions.

**Other families** of antidepressant drugs include the MAOI's (monoamine oxidase inhibitors). MAOI's are very effective but have potentially life-threatening drug interactions and food interactions

### *Nutrition*

1. If stress is affecting the digestive system, avoid food that stresses the body and can aggravate existing bowel inflammation or irritation, such as
  - artificial sweeteners, sugar, and carbonated soft drinks
  - fries food, and saturated animal fat.
  - fast-foods (e.g. McDonald, KFC), processed food, food with a lot of preservatives or additives. These types of foods are usually high in calories and low in nutrients.
  - hot/spicy foods.
2. Eat small frequent meals over a few large ones. Small meals are easier to digest, thus, reducing stress from the bowels. Frequent small meals provide the body with a regular intake of nutrients and energy during this time of stress.
3. Reduce/avoid coffee or caffeine (if you are a coffee drinker, aim to reduce it to one cup a day) – caffeine promotes nervousness and hyperactivity, upsets sleep, can inhibit the absorption of nutrients, increases the acidity of the body, increases loss of calcium (increasing the risk to osteoporosis).
4. Reduce/avoid alcohol intake (although it seems to offer temporary outlet for stress, it does not solve the problem and instead adds more stress to the body). Alcohol stresses the liver and inhibits production of digestive enzymes, raises blood sugar level, promotes the elimination of nutrients through urine and dehydrates the body, and increases uric acid (associated with kidney stone and rheumatic conditions such as gout). In excess and long use, it damages liver, pancreas, the nervous system, increases the risk of cancer (esp. mouth, throat and stomach cancers).
5. Do a body cleansing/detoxification for 3–7 days. This will help the body remove toxins, and offending substances that may have accumulated. Accumulation of toxins leads to irritability, mood swings, reduced concentration, headaches, “foggy” brain.
6. Vitamins and minerals are often depleted due to stress, such as zinc, selenium, calcium, magnesium, iron, and potassium, Vit. B’s, A, C and E. In addition, during stress, the body is consuming more carbohydrates, proteins, and fats. Thus, a high nutrient diet is important during time of stress. Furthermore, people with nutrient deficiencies are more susceptible to allergies. Refer to the *Supplements* section for information on these nutrients, food sources, and supplement doses.
7. Eat a lot of fresh fruit and vegetables – they are rich in nutrients (vitamins & minerals), fibers, flavonoids (protect body from free radicals damage), and help cleanse body of toxins.
8. Avoid processed and refined foods containing a lot of additives such as food dyes, flavoring (e.g. MSG), food coloring (esp. artificial additives). Many additives have been associated to food allergies and sensitivities.
9. Include food such as whole grains, green vegetables, lean meat, and brown rice. These are rich in B vitamins and help build the resistance to stress, cell proliferation, and energy.

Lima beans, tomatoes and salmon are high in potassium and B5 Vit. Potassium can help alleviate symptoms of excess adrenaline (avoiding salt to support the sodium–potassium balance), and Vit. B5 (considered the anti-stress vitamin) helps with the functioning and production of the adrenal gland hormones.
10. If possible, buy organic products to reduce intake of pesticide residues and other chemicals, and hormones in animal-foods.
11. Avoid cigarettes/tobacco, including second hand exposure (as alcohol, it seems to offer temporary outlet for stress, but it does not solve the problem but instead adds more stress to the body. Cigarette smoke has been associated to many health conditions such as:
  - Cardiovascular: atherosclerosis, high blood pressure, coronary heart disease, peripheral vascular disease, myocardial infarction, stroke.
  - Respiratory: rhinitis, sinusitis, respiratory infections, chronic bronchitis, emphysema, asthma, lung cancer.
  - Immune/endocrine: diabetes, cold hands/feet, low immune system, fatigue, allergies, increases levels of free-radicals which in turn, increases damage to vessels, organs and tissues, and increases the aging process; increases the risk of cancer (lung, mouth, tongue, throat, esophageal, bladder, kidney, cervical),
  - Nervous system: Alzheimer’s disease, headaches, memory loss, anxiety, senility
  - Digestive system: vitamins and mineral deficiencies, hiatus hernia, heartburn, cancer (mouth, tongue, esophageal, pancreatic), peptic ulcers
  - Others: increase infant mortality, low birth weight, burns, impotence, leg pains

In addition, cigarettes contain Cadmium, a heavy metal that replaces Zinc in the liver and kidneys and can accumulate in the body. Long exposure to high level of Cadmium can lead to high blood pressure, dull sense of smell, yellow discoloration of the teeth, nasal inflammations (runny nose, congestion), joint pain, hair loss, reduce appetite, dry/scaly skin, and can weaken the immune system.

## *Supplements*

Nutrient	Recommended Dose <sup>1</sup>	Description and Food Sources
Acidophilus	As directed on label	To restore normal flora of the bowel; act as immune enhancer, improve digestion.
Vit A  Beta-carotene (Precursor to Vit. A)	10000 IU daily  20000 IU daily	An oil soluble vitamin. Antioxidant (protects body against damage by free-radicals), protects against colds/flu and infections of kidney, bladder, lungs, and mucus membranes. Needed for the utilization of protein by the body, promote health of eyes/vision, and skin.  Beta-carotene is a precursor to Vit. A and found in plants. It is converted to Vit. A by the body, a process that ensures that Vitamin A levels do not become excessive. Thus, beta-carotene is generally considered non-toxic.
		Vit. A supplement is best taken with fatty foods (good fats containing foods), since vitamin A is a fat-soluble vitamin, helping its absorption. Vitamin E and Zinc participate in the metabolism of vitamin A. Thus, if using Vit. E and/or Zinc, taken them together. <u>Food sources:</u> liver, fish liver oils, green and yellow fruit and vegetables such as papayas, mango, carrots, apricots, peaches, asparagus, cantaloupe, garlic, kale, squash, yams, sweet potatoes.
B-Complex  Extra Vit. B <sub>5</sub>  Extra Vit B <sub>6</sub>	50–100 mg 2–3x/day  100 mg 2–3x/day  100 to 200 mg/day	B-vitamins work together synergistically, so it is best to take them together in a B-Complex. The B-vitamins are needed for the health and proper functioning of the nervous system, eyes, skin, liver, for the production of energy, cell replication; and for the metabolism of fats, carbohydrates and protein. Some of the B-vitamin individual action includes:  Vit. B <sub>1</sub> participates in the synthesis of the neurotransmitter acetylcholine, and linked to learning capabilities, and growth in children. Important for the muscle tone of the stomach, intestines, and heart.  Vit. B <sub>2</sub> needed for normal cell growth, cell respiration. Helps with fatigue and lack of vitality.  Vit. B <sub>3</sub> is essential for the production of energy; needed for synthesis of sex hormones (as estrogen), production of adrenal hormones.  Vit B <sub>5</sub> is considered the anti-stress vitamin; it is required for the manufacture of adrenal hormones; participates in the synthesis of the neurotransmitter acetylcholine.  Vit-B <sub>6</sub> is needed for the manufacture of neurotransmitters such as serotonin, dopamine, adrenaline, noradrenaline, GABA. Participates in the synthesis and functioning of DNA & RNA, helps with the electrical functioning of the nerve and muscles..  Folic acid and B <sub>12</sub> are needed for DNA division of cells (deficiencies can lead to some types anemia, memory loss, irritability, depression). Vit. B <sub>12</sub> is essential for the metabolism of the nerve tissue, and the health of the nervous system.  Inositol participates in the proper functioning of neurotransmitters in the brain including serotonin and acetylcholine.  Biotin – a coenzyme; helps with the formation of DNA and RNA.  Choline or Phosphatidyl choline is an integral part of the acetylcholine neurotransmitter. It is important for the health of the myelin sheath covering the nerves. Helps with liver and gallbladder functions.  <u>Food sources</u> depend on the type of vitamins. Food rich in various types of B vitamins are brown rice, egg yolk, fish, legumes, liver, poultry, beef, whole grains, oatmeal, nuts & seeds, dried fruits (raisin, figs, prunes), milk, yogurt, Brussels sprouts, dandelion greens, leafy green vegetables, brewer’s yeast, avocados, cheese.

<sup>1</sup> The dose listed corresponds to the adult dose. For ages 12 to 17 reduce dose to three quarters; for children between 6 and 12 reduce dose by half. For children under 6, consult a health practitioner.

Vit C with bioflavonoids	1000 mg 2–3x/day or to bowel tolerance (increase dose daily by 500 mg until stool become loose, and then reduce until stool is normal again. Then keep this dose).	Antioxidant, support the immune system, needed for tissue growth and repair; for the adrenal gland function (overworked during chronic stress), and healthy gums. It helps with the production of anti-stress hormones, and enhances immune function. It helps protect against the effects of pollution, reduces risk of cancer, protect against infections. It works synergistically with Vit. E and beta-carotene (so it's best to take them together).  Bioflavonoids (such as quercetin) help stabilize the cell walls and inhibit release of histamine.  <u>Food sources:</u> kiwis, citrus fruit, berries, green vegetables, asparagus, avocados, black currants, mangos, cantaloupes, onions, kale, papayas, pineapples.
Vit E	400 IU	Powerful antioxidant that works synergistically with Selenium. It enhances immune functions (often affected by long term stress), protects against cancer and cardiovascular disease, improve circulation, needed for tissue repair, normal blood clotting and healing, participates in healthy nerves and muscles, strengthen capillary walls.  <u>Food sources:</u> cold pressed vegetable oils, dark green leafy vegetables, legumes, nuts & seeds, whole grains, brown rice, eggs, milk, oatmeal.
Selenium (Se)	100 – 200 mcg	Helps inhibit the oxidation of lipids. Antioxidant that works synergistically with Vit. E and together help in the production of antibodies and maintaining a healthy heart & liver. Protects the immune system by preventing the formation of free radicals. Helps regulate the effects of thyroid hormones on fat metabolism. Needed for pancreatic function and tissue elasticity. Together with Vit E and zinc help with enlarged prostate.  <u>Cancer notes:</u> it has anti-tumor activity, helps protect against formation of tumors. <u>Food sources:</u> meat, grains, brazil nuts, brewer's yeast, broccoli, brown rice, dairy products, garlic, liver, blackstrap molasses, seafood, chicken.
EFAs: Flax seed oil  Evening Primrose oil  Fish oil	1–2 tsp/day  500 mg 2–3 x/day  1000 mg/day	Essential Fatty Acids (EFAs) are critical nutrients to our body. They are needed for the normal growths of the body, and are used to make up the membrane of every cell of our body. EFAs are vital for a healthy brain and immune function. They are needed for the normal development of the brain; help with nerve transmission, cells & organs respiration, used in the lubrication of tissues (skin, joints), support adrenal, and thyroid activity. EFAs also aids digestion, and are used for the production of anti-inflammatory prostaglandins.  <u>Food source</u> – cold water fish (tuna, salmon, mackerel), Flax seeds.
Calcium (Ca) Magnesium (Mg)	700 to 1000 mg/day 350 to 500 mg/day	Ca & Mg are best taken together (2:1 is most commonly available).  Ca and Mg help calm the nervous system, thus are beneficial for anxiety and insomnia. Ca is essential for the formation of bones & teeth, and maintenance of healthy gums. It is also needed for regular heartbeat and nerve transmission, and muscular growth and contraction. It helps reduce cholesterol levels and the risk of cardio-vascular disease.  Mg participates in energy production, nerve transmission, muscle contraction, helps with calcium and potassium uptake, and the proper body's pH and temperatures. It helps prevent depression, dizziness, muscle cramp, muscle weakness, and symptoms of PMS.  <u>Food sources</u> of Ca are milk, dairy products, seafood, dark green leafy vegetables, almonds, asparagus, blackstrap molasses, brewer's yeast, broccoli, nuts & seeds, dried fruits, oats, kale. Mg is found in most foods especially dairy, fish, meat, and seafood; also, apples, apricots, avocados, bananas, blackstrap molasses, brown rice, brewer's yeast, garlic, nuts & seeds, whole grains, legumes.
Iron (Fe)	25 mg daily.	Required for the production of hemoglobin (to transport the oxygen within of the red blood cells) and myoglobin (within the muscle tissue). It is also needed for a healthy immune system and energy production.  <u>Food sources:</u> eggs, fish, liver, meat, poultry, green leafy vegetables, whole grains, almonds, blackstrap molasses, brewer's yeast, dried fruits (as dates, figs, prunes, raisins), avocados, beans.

Quercetin	500 mg 3x/day	A flavonoid that helps stabilize the cell walls and inhibits release of histamine, increases immunity, scavenges free radicals, inhibits irritation of intestinal smooth muscles, and reduces the damage caused by food allergens. <u>Food sources</u> (bioflavonoids in general): colorful fruit and vegetables such as peppers, buckwheat, black currant, apricots, blackberries, cherries, grapefruit, grapes, plums, prunes, rose-hips, hawthorn berries.
Potassium (K)	300 – 500 mg daily	Needed for the health of the nervous system and heart rhythm. Helps with muscle contraction, helps maintain water balance (along with Sodium), regulates transfer of nutrients to the cells. <u>Food sources</u> : dairy products, fish, legumes, meat, poultry, whole grains, fruits and vegetables as apricots, potatoes, bananas, avocados, lima beans, dried fruit, nuts, brewer's yeast.

### *General*

- Practice love and patience with yourself.
- Take time for fun and play – any activity that makes you relax or smile.
- Nourish and/or build good relationship with people that support you around you.
- Read books that dissipate work and worries from the mind, and lift the spirit.
- Exercise regularly – it relieves stress and helps clear the mind, tones the muscles and supports the health of the body, and increases self-esteem. Exercise releases endorphins that elevate our mood and spirit.
- If exercising alone is difficult, join an exercise group such as Yoga, Thai Chi, Martial arts, swimming, jogging, hiking, etc.
- Practice deep breathing exercises to help relax the body and the mind, and promotes circulation.
- If stress is associated to a serious illness (on yourself or someone close to you), join a support group for that condition or similar condition. Support groups not only give support, but also can provide additional/useful information and options to explore. In addition, support groups help people in similar situation feel less alone and helpless, and can give hope.
- Express your feeling (negative emotions kept inside can create blocks, anxiety, depression, and more stress).
- Try making time and room for small changes in current lifestyle, and give your body and mind the time to accommodate or adapt to the changes. Small changes are easier to implement than big ones, and are less stressful to live through (for instance, if trying to eat more fruit, start with one piece of fruit a day; if trying to incorporate exercise in your life, walk 15 minutes after lunch or dinner instead of trying to train for a marathon).
- Reduce or stop intake of alcohol, drugs, and smoking if applicable. They may feel to ease the stress in the moment, but can have detrimental effects on our body and health long term.
- Try not to take life to seriously – learn to laugh. Laugh not only feels good and elevates our mood and spirit, but also boost the immune system and promotes healing.
- Avoid the use or stimulants or medication to deal with symptoms associated with stress, such as caffeine to fight sleep, painkillers for headaches, antacids to help digestion, drugs to lower blood pressure, cholesterol, or for palpitations, etc. These merely mask the stress effects, they do not remove the stress response, and thus our body continues to struggle over a vicious circle stress response until exhaustion.
- Remind yourself frequently that to “the universe” there is not such as thing as impossible, incurable, un-reachable.