

Comprehensive Fatigue Assessment

Is fatigue slowing you down? Sixty million Americans are so fatigued that it interferes with their daily activities and prevents them from achieving their goals. Emotional causes account for 40-80% of the cases, while physical causes account for only 20-60%.

Causes of Fatigue

The first step to finding relief from your fatigue is to take inventory of the things that might be responsible for your fatigue. Below are the key hormones and neurotransmitters that are linked to causing fatigue.

Top 5 Metabolic Causes of Fatigue:

- 1) Thyroid hormone Deficiency (T3 and T4)
- 2) Adrenal hormone Deficiency (Aldosterone, Cortisol)
- 3) Testosterone Deficiency (Men or Women)
- 4) Energy Neurohormone Deficiency (Dopamine, Norepinephrine and Epinephrine)
- 5) Sleep Neurotransmitter Deficiency (Serotonin, GABA)

Thyroid Hormone

The Thyroid gland, located in the base of the neck, secretes Thyroxine (T4) when prompted to do so by Thyroid Stimulating Hormone (TSH) released from the Pituitary Gland in the brain. Triiodothyronine (T3) is made from T4. T3 is the active Thyroid hormone that does most of the actual work. It is three to five times more active than T4.

Thyroid hormones speed up metabolism and regulate body temperature. They control weight, thinning the face, torso, and calves in particular. They boost blood circulation, thereby increasing the supply of nutrients, oxygen, water, and other hormones to cells all over the body. They keep the skin soft and flexible. Thyroid hormones prevent dry skin and hair, hair loss and thinning hair, puffiness of the face and swelling of the eyelids. They prevent sluggishness of memory and concentration and they are important in keeping you looking and feeling young and alive.

Thyroid Hormone Deficiency	Never	Occasionally	Frequently	Constantly
Cold hands and feet	0	1	2	3
Constipation	0	1	2	3
Tired, fatigued	0	1	2	3
Sluggish	0	1	2	3
Waking unrefreshed	0	1	2	3
Depressed	0	1	2	3
Swollen face	0	1	2	3
Puffy eyelids	0	1	2	3
Thinning hair	0	1	2	3
Thinning eye brows	0	1	2	3
Disruptive snoring	0	1	2	3
High Cholesterol	0	1	2	3
Almost inaudible heart beat	0	1	2	3
Skin dry, pale	0	1	2	3
Brittle nails	0	1	2	3
Fat hips & thighs	0	1	2	3
Heavy calves	0	1	2	3
Swollen ankles	0	1	2	3
Slow thinking	0	1	2	3

Adrenal Cortisol

Cortisol (also known as Hydrocortisone) is produced by the adrenal glands. It is released with adrenaline during times of stress. Cortisol raises blood sugar levels, promotes the metabolism of proteins and the breakdown of fats to provide strength and energy, makes your heart beat faster and increases your blood pressure. A deficiency will cause you to feel unable to cope with stress, wiped out and lightheaded, mentally dull and depressed, anxious, pessimistic and defeated, confused and distracted, or paralyzed by stress.

Cortisol Deficiency		Never	Occasionally	Frequently	Constantly
1	Unrefreshing sleep	0	1	2	3
2	extreme fatigue or exhaustion	0	1	2	3
3	slow to recover from any exertion	0	1	2	3
4	feel wiped out by stress	0	1	2	3
5	anxiety at the end of the day	0	1	2	3
6	irritable, angry, or easily upset	0	1	2	3
7	low blood pressure	0	1	2	3
8	light-headedness on rising	0	1	2	3
9	easily distracted or confused	0	1	2	3
10	low blood sugar (hypoglycemia)	0	1	2	3
11	shaky, or weak if miss a meal	0	1	2	3
12	allergies, eczema, or asthma	0	1	2	3
13	Irritable Bowel Syndrome	0	1	2	3
14	arthritis, inflammation	0	1	2	3
15	flu-like symptoms / body aches	0	1	2	3
16	muscle weakness	0	1	2	3
17	dark circles under eyes	0	1	2	3
18	waking frequently at 2-3AM	0	1	2	3

Aldosterone

Aldosterone is an adrenal hormone that regulates re-absorption of sodium from the kidneys and controls blood pressure when you stand up or stoop over. It also energizes and stimulates you to help you handle stressful situations. It fights drowsiness and helps maintain alertness.

Aldosterone Deficiency		Never	Occasionally	Frequently	Constantly
1	Fatigue	0	1	2	3
2	Low Blood Pressure	0	1	2	3
3	Crave salty foods	0	1	2	3
4	Lightheaded on standing up	0	1	2	3
5	Feel better lying down	0	1	2	3
6	Frequent urination	0	1	2	3
7	High Thirst	0	1	2	3

Testosterone

Testosterone is not just for men. Women have it and need it as well. A deficiency of Testosterone in a woman leads to fatigue, muscle wasting, low sex drive, decreased sexual stimulation, and diminished sense of well-being. Testosterone protects the heart and reduces plaque build up in the arteries. It prevents joint pain and osteoporosis. It builds muscle and reduces fat and cellulite. Testosterone tightens the skin and prevents wrinkles. When a woman's ovarian function declines in the years before and during natural menopause, so does the amount of Testosterone she produces. Between a woman's 20s and 40s the amount of Testosterone circulating in her blood declines about 50%. If a woman starts Estrogen Replacement Therapy at menopause, her blood levels of Testosterone drop even further due to a biochemical reaction. Women should test their Testosterone levels beginning at about age 35.

Testosterone Deficiency		Never	Occasionally	Frequently	Constantly
1	Lack of sexual desire	0	1	2	3
2	difficulty attaining/maintaining erections	0	1	2	3
3	lack of sexual arousal or orgasm	0	1	2	3
4	lack of sexual sensitivity	0	1	2	3
5	lack of feeling attracted to partner	0	1	2	3
6	depression	0	1	2	3
7	nervousness, anxiousness	0	1	2	3
8	gray hair	0	1	2	3
9	wrinkles and fine lines	0	1	2	3
10	tired all the time	0	1	2	3
11	poor sleep	0	1	2	3
12	memory problems	0	1	2	3
13	high blood pressure or high cholesterol	0	1	2	3
14	fat abdomen, love handles	0	1	2	3
15	fat hips and thighs	0	1	2	3
16	large or fatty breasts	0	1	2	3
17	lack of muscles	0	1	2	3
18	joint pains, arthritis	0	1	2	3

Dopamine

Dopamine is neurotransmitter (a substance that nerves use to send messages to one another). Depending on the dopamine receptor to which it binds, it can be either an excitatory or inhibitory neurotransmitter. It is derived from the amino acid L-Tyrosine. Dopamine is the precursor to norepinephrine and epinephrine, which are all catecholamine neurotransmitters. The function of dopamine is diverse but plays a large role in the pleasure/reward pathway (addiction and thrills), memory, and motor control. Dopamine, like norepinephrine and epinephrine, is stored in vesicles in the axon terminal.

Dopamine Deficiency		Never	Occasionally	Frequently	Constantly
1	Sadness / Depression	0	1	2	3
2	Apathy / lack of usual interests	0	1	2	3
3	Lack of emotions / blah or flat	0	1	2	3
4	Low energy physically & mentally	0	1	2	3

5	Lack of motivation/enthusiasm	0	1	2	3
6	Lack of satisfaction	0	1	2	3
7	Feeling unfulfilled	0	1	2	3
8	Addictive tendencies	0	1	2	3
9	Shakiness/tremor of hands	0	1	2	3
10	Obsessive/compulsive tendencies	0	1	2	3

Norepinephrine

Norepinephrine is one of a variety of catecholamines, which are hormone and neurotransmitter chemicals produced by the adrenal medulla. Norepinephrine plays a significant role in the sympathetic nervous system, where it is necessary for heightened alertness, attention, focus and mental and nervous system sharpness. Excessive amounts of Norepinephrine causes restlessness, anxiousness and insomnia. A deficiency can cause fatigue, apathy, lack of usual interest and excitement, mental dullness, inability to concentrate and depression.

Norepinephrine Deficiency		Never	Occasionally	Frequently	Constantly
1	Sadness / Depression	0	1	2	3
2	Apathy / Lack of usual interests	0	1	2	3
3	Poor attention / Easily distracted	0	1	2	3
4	Difficulty focusing/concentrating	0	1	2	3
5	Low energy	0	1	2	3
6	Lack of motivation	0	1	2	3
7	Impotence	0	1	2	3

Epinephrine (Adrenaline)

Epinephrine, also known as Adrenaline, is an excitatory neurotransmitter derived from Norepinephrine. As a hormone, Epinephrine is secreted along with Norepinephrine from the adrenal glands. Heightened secretion can occur in response to fear or anger and will result in increased heart rate and blood pressure. This reaction, referred to as the "fight or flight" response, prepares the body for strenuous activity. Elevated levels of epinephrine can be factors contributing to restlessness, anxiety, sleep problems. Low Epinephrine levels will can be due to adrenal stress (a pattern in which the adrenal output is suppressed due to chronic stress), leading to general fatigue. Low levels of epinephrine can also contribute to weight gain.

Epinephrine Deficiency		Never	Occasionally	Frequently	Constantly
1	Low blood pressure	0	1	2	3
2	Poor muscle tone	0	1	2	3
3	Depression	0	1	2	3
4	Poor attention / Easily distracted	0	1	2	3
5	Difficulty focusing/concentrating	0	1	2	3
6	Low energy	0	1	2	3

Serotonin

Serotonin is a neurohormone found primarily in the brain, pineal gland, central nervous system, blood platelets and the digestive tract. It is derived from the amino acid 5-Hydroxytryptophan (5HTP). It acts as a calming or inhibitory neurotransmitter and a vasoconstrictor (a substance that causes blood vessels to narrow). A lack of serotonin is associated with causing anxiety, depression, compulsive disorders, poor concentration, learning problems, sleep dysfunction, excessive appetite and decreased sex drive.

Serotonin Deficiency		Never	Occasionally	Frequently	Constantly
1	Depression	0	1	2	3
2	Anxiety	0	1	2	3
3	Difficulty coping with stress	0	1	2	3
4	Difficulty falling or staying asleep	0	1	2	3
5	Fatigue	0	1	2	3
6	Chronic muscle pain/Fibromyalgia	0	1	2	3
7	Irritability	0	1	2	3
8	Poor focus/Inability to concentrate	0	1	2	3
9	Obsessive /compulsive behavior	0	1	2	3
10	Migraine headaches	0	1	2	3
11	Irritable Bowel Syndrome (IBS)	0	1	2	3
12	Constipation alternating with diarrhea	0	1	2	3
13	Carbohydrate Cravings	0	1	2	3
14	Weight gain	0	1	2	3

GABA

Gama Amino Butyric Acid (GABA) is the primary inhibitory neurotransmitter in the brain. It regulates the excitability of virtually all neurons in the brain. GABA affects the body's signaling system by decreasing neuron activity and prevents nerve cells from over firing. It can be viewed as the "*braking system*" in the brain that stops excitatory transmissions and restores balance and calm to the system.

GABA Deficiency		Never	Occasionally	Frequently	Constantly
1	Anxiety	0	1	2	3
2	Insomnia	0	1	2	3
3	Stressed/Hurried/Pressured	0	1	2	3
4	Difficulty relaxing	0	1	2	3
5	Nervousness	0	1	2	3
6	Panic attacks	0	1	2	3
7	Heart palpitations	0	1	2	3
8	Difficulty falling asleep	0	1	2	3
9	Difficulty turning off thoughts	0	1	2	3
10	Excessive worries	0	1	2	3
11	Irrational thoughts	0	1	2	3
12	Suicidal thoughts	0	1	2	3