



While fatigue is a common symptom, the term is used in many ways and has different features depending upon the situation. Fatigue is an epidemic and for many affects quality of life and health.

Clarifying Terms

Fatigue is “the inability to continue an activity”, whether that activity be staying awake, standing, lifting, concentrating or feeling joyful. “Endurance” is the opposite, or “the ability to sustain an activity”.

These concepts also apply to structures and functions. Bone can fatigue (fracture), but the symptom is not fatigue, but pain. When heart muscle fatigues, it might be perceived as shortness of breath before fatigue is felt. Thyroid or adrenal gland fatigue might be initially felt as coldness.

Related to these terms, “force” is the energy required for work. Fatigue occurs when there is not enough energy or force to complete a task. “Power” is defined as energy per unit of time (an 100 watt bulb consumes and delivers more energy per time than a 60 watt bulb). With more power, the same work can be done faster. In some circumstances, what’s important is not only the total amount of energy required, but how fast it can be delivered, such as crossing a street.

Levels and Locations of Fatigue

The human experience of fatigue can occur at several levels, separately or in combination. In starvation, there is simply not enough fuel. In thyroid disorders, there is plenty of gas but the engine is too cold or not running fast enough. With muscular fatigue, oxygen cannot be delivered and/or utilized fast enough. Emotional/cognitive fatigue (depression, inattention) can represent a deficiency of neurotransmitters and/or the mechanisms to make or utilize them.

Mitochondria

Mitochondria are the furnaces within each cell, which use oxygen to burn fuel (carbohydrate or fat) to generate energy. Every cell of the body needs energy to do its function, and that energy comes from the mitochondria. One muscle cell can have thousands of mitochondria. Nerve cells can’t think, pancreas cells can’t produce insulin or digestive enzymes, immune cells cannot defend without the energy supplied by mitochondria. While mitochondrial diseases are rare, toxins and deficiencies that affect mitochondrial function are rampant, and include lead, mercury, and lack of iodine or amino acids such as carnitine. Mitochondria fail in different patterns based on individual factors, so the same toxin in one person might lead to diabetes, in another infections and a third depression. Mitochondrial disease can look like any

medical condition that we know. “Reactive oxygen species”, and “oxidative stress”, considered a major factor in aging brains, skin, and bodies are over-produced when mitochondria are sick. More on mitochondria in future articles.

Overload Principle

Most tissues of our bodies, including brain, bone, muscle, and their mitochondria, respond to overload by growing stronger. A paradox of fatigue is that to heal it one must push these tissues, but not too much, and with proper support.

Sleep-Wake Cycles and Biorhythms

Fatigue requires consideration of the importance of the sleep-wake cycle and our epidemic of sleep deprivation and disorder. The Grand Design dictates that we sleep between 7-9 hours per night. Trying to cheat this system guarantees health consequences, short and long term, whether manifested by fatigue, immune dysfunction, ADD, obesity or heart disease. A complex sequence of events occur over our natural 24 hour cycle. Altering this rhythm affects every function, including sleep, causing a downward spiral. Prioritizing sleep is non-negotiable in healing most chronic conditions. Eating at the right times of day programs our sleep-wake cycles.

Holistic Evaluation and Treatment

An organized multi-dimensional approach using the best of conventional and holistic medicine, and addressing the factors discussed above can usually improve complaints of fatigue, sometimes quickly and efficiently.

IMPORTANT NOTES:

1. This educational material should not be used to make decisions about medical care without the involvement of a knowledgeable practitioner.
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3. Dr. Cheikin's website, cheikin.com, has references and related articles on “Biorhythms”, “Adrenal Fatigue”, “Stealth Infections” and others.

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Causes and Effects of Fatigue

- Adrenal Fatigue
- Allergy (Environment and/or Foods)
- Coldness
- Depression (and Anxiety)
- Eating too late or skipping breakfast
- Infections (Chronic and/or Stealth)
- Iron Deficiency (with or without Anemia)
- Neurological Diseases (such as MS, Parkinsons)
- Nutritional Deficiency
- Pharmaceuticals
- Post-Traumatic Stress
- Sex Hormone imbalance
- Shift Work
- Sleep Disorder
- Stress
- Thyroid Disorders
- Toxicity
- Travel with Sleep Shift