

What is Fatigue?

According to a survey conducted by the Centers for Disease Control and Prevention, over 15% of women and 10% of men experience fatigue. Fatigue is a condition characterized by a lack of mental or physical energy, low initiative, and increased feelings of tiredness. There are various types of fatigue, commonly classified by the length of time symptoms are experienced, including acute fatigue (less than one month), subacute fatigue (one to six months), and chronic fatigue (over six months).

Chronic Fatigue Syndrome

Chronic fatigue syndrome (CFS), also known as myalgic encephalomyelitis (ME), is an idiopathic condition characterized by debilitating fatigue and symptoms lasting over six months. A diagnosis of CFS/ME requires exclusion of other possible causes of fatigue and identification of the following symptoms:

- Exhaustion following exertion
- Cognitive impairment, pain, and/or sleep disturbances
- Immune, gastrointestinal, and genitourinary symptoms (e.g., longer recovery from infection, flu-like symptoms, and environmental or food sensitivities)
- Symptoms of energy production or energy transportation impairment, such as respiratory fatigue or intolerance to extreme temperature

Causes and risk factors

While CFS/ME has no known cause, fatigue may also present as a symptom of various conditions, or as a result of certain dietary and lifestyle habits, which include:

- Mitochondrial dysfunctions
- Certain health conditions, including fibromyalgia, cancer, multiple sclerosis (MS), heart failure, acquired immunodeficiency syndrome (AIDS), Parkinson's disease, and dementia
- Endocrine (hormonal) conditions, such as hypothyroidism and adrenal insufficiency
- Depression and/or anxiety
- Traumatic brain injury (TBI)
- Certain medications, such as antihistamines, antidepressants, and painkillers
- Nutritional deficiencies, including B vitamins, magnesium, and iron deficiency
- Excessive caffeine or alcohol intake

Signs, symptoms, and complications

There are several possible mental and physical symptoms of fatigue. Mental symptoms involve difficulty with memory, concentration, and sleep, while physical symptoms include weakness, lowered physical stamina, and weight loss or gain. Symptoms of fatigue can range from mild to severe and significantly affect quality of life.

Diet and Fatigue

The table below summarizes energy-supportive nutrients and the food sources in which they are found.

Nutrient	Function	Sources
B Vitamins	Act as coenzymes in reactions that convert the energy from food to energy used by the body's cells	Liver, eggs, tuna, lamb, legumes, brown rice, nutritional yeast, milk, and yogurt
Vitamin C	Acts as an antioxidant; vitamin C deficiency can lead to altered mitochondrial function	Citrus fruits, kiwi, strawberries, bell peppers, broccoli, kale
Magnesium	Required for cellular energy production; mitochondria store high levels of magnesium	Nuts and seeds, soy (e.g., tofu, tempeh), green leafy vegetables (e.g., kale, spinach, Swiss chard)
Iron	Essential for oxygen transport in the blood; used in enzymes required for cellular energy production	Beef, chicken, oysters, tuna, prunes, quinoa, spinach, swiss chard, beans, and legumes
Coenzyme Q10 (CoQ10)	Component of the electron transport chain in the inner mitochondrial membrane	Organ meats (heart, liver, kidney), beef, pork, oily fish (e.g., trout, herring, sardines), spinach, cauliflower, broccoli, oranges
Essential fatty acids	Structural component for cell membranes; supports cognitive and cardiovascular function	Oily fish (e.g., herring, sardines, mackerel, anchovy, salmon, cod)

Lifestyle and Fatigue

Certain lifestyle changes, such as optimizing sleep, engaging in regular physical activity, and managing stress, can help improve energy levels. Studies show that aerobic exercise three times per week for 30 to 60 minutes improves energy levels. Research has also demonstrated that cognitive-behavioral therapy and mindfulness-based interventions are associated with reduced fatigue.

Minimizing reliance on stimulants, such as sugar, coffee, tea, and energy drinks, can help maintain balanced energy levels. While stimulants temporarily increase energy levels, long-term consumption can negatively affect sleep quality and result in fatigue. Limiting alcohol consumption can also improve sleep and energy. While often accompanied by drowsiness, alcohol consumption interferes with hormones and neurotransmitters essential to sleep quality, such as melatonin and gamma-aminobutyric acid (GABA).

The National Institutes of Health (NIH) recommends that adults sleep a minimum of seven to eight hours per night. Maintaining a consistent bedtime and practicing proper sleep hygiene, such as dimming lights and limiting screen time in the evenings, can help ensure good-quality sleep.