

Living With Chronic Fatigue



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Chronic Fatigue Syndrome

Fatigue can be a symptom of just about any illness, vitamin deficiency, too much stress, too little sleep, poor diet, etc. Fatigue is the most common symptom reported to doctors by patients. When fatigue interferes with daily life, lasts more than 6 months, and is not relieved by rest, it may be considered Chronic Fatigue Syndrome (CFS).



People with CFS often function at a substantially lower level of activity. This is because the symptoms of CFS affect several of the body's systems which can result in reduced participation in daily activities. It is estimated that there are more than one million Americans with CFS and less than 20% of them have been previously diagnosed.¹ CFS is often thought of as a problem in adults, but it also affects children and adolescents: between 0.2% and 2.3% of children or adolescents suffer from CFS.¹

What Is Chronic Fatigue Syndrome?

The primary symptom of CFS is unexplained, severe fatigue lasting 6 months or more and which is not improved by bed rest. "Individuals with CFS experience a fatigue so strong that their activity levels and stamina decline dramatically." However, fatigue is not the only defining symptom of CFS. Centers for disease control (CDC) developed a definition of for chronic fatigue syndrome in 1994 which establishes three criteria:

1. The individual has had severe chronic fatigue for 6 or more consecutive months and the fatigue is not due to ongoing exertion or other medical conditions associated with fatigue (these other conditions need to be ruled out by a doctor after diagnostic tests have been conducted).

2. The fatigue significantly interferes with daily activities and work.



3. The individual concurrently has 4 or more of the following 8 symptoms:

- Post-exertion malaise lasting more than 24 hours
- Unrefreshing sleep
- Significant impairment of short-term memory or concentration
- Muscle pain
- Pain in the joints without swelling or redness
- Headaches of a new type, pattern, or severity
- Tender lymph nodes in the neck or armpit
- A sore throat that is frequent or recurring

Source: <https://www.cdc.gov/cfs/case-definition/index.html>

In addition to the above symptoms which are used to diagnose the illness, patients with CFS may also suffer from "irritable bowel, depression or other psychological problems, chills and night sweats, visual disturbances, brain fog, difficulty maintaining upright position, dizziness, balance problems, fainting, and allergies or sensitivities to foods, odors, chemicals, medications, or noise".¹

Diagnosis



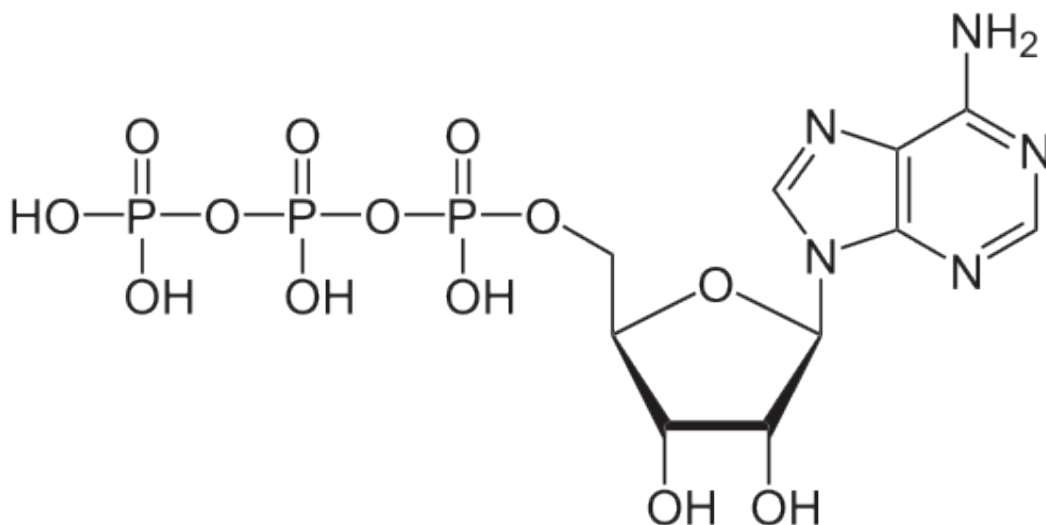
Despite years of research, scientists have not yet identified what causes CFS.¹ There is no blood test, brain scan, or other lab test to diagnose CFS. CFS can only be diagnosed after ruling out other possible illnesses.

It is not known whether CFS is the result of one disease or several. It is believed that one or more of the following may be a possible cause of CFS:

- Infections
- Immune dysfunction
- Abnormally low blood pressure that can cause fainting
- Nutritional deficiency
- Stress that activates the axis where the hypothalamus, pituitary, and adrenal glands interact (HPA axis)

Mitochondrial Dysfunction

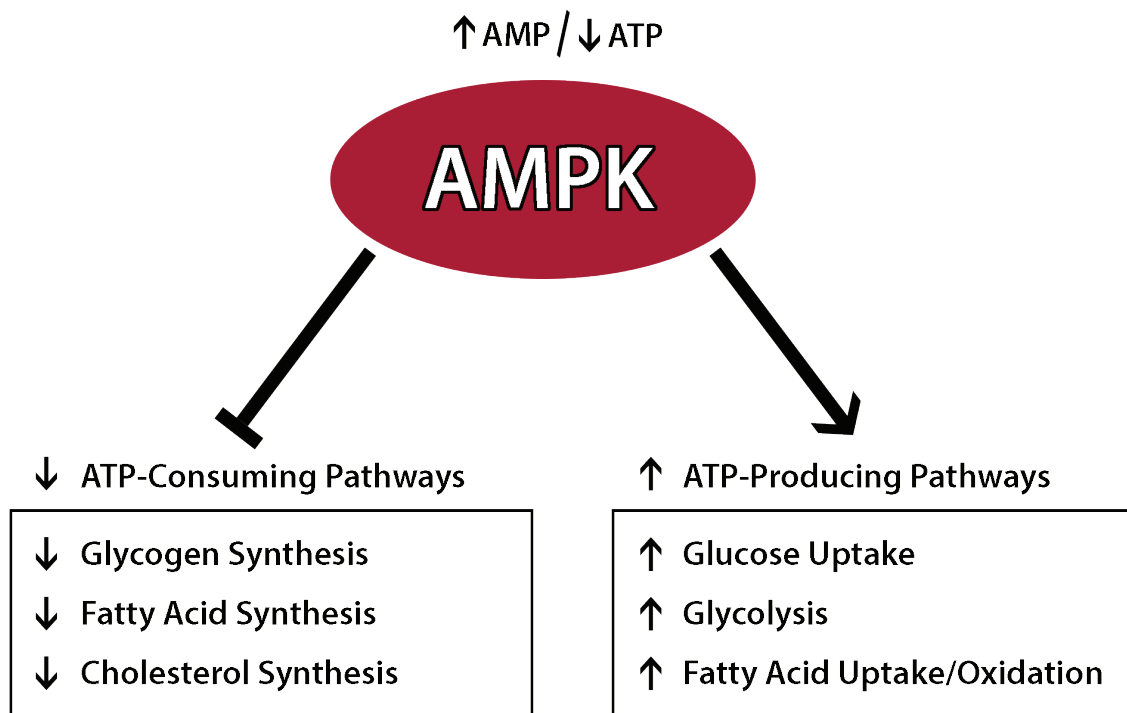
The primary role of a cell's mitochondria is converting nutrients to energy.² The energy created by the mitochondria enables your cells to carry out their many jobs within the body. However, if one is suffering from mitochondrial dysfunction, less energy is produced, preventing the cells from doing their jobs properly. Because more than 90 percent of the energy needed by the human body is generated by mitochondria, the effects of mitochondrial dysfunction can be far reaching. For this reason, symptoms of CFS such as low energy, poor attention, memory loss, lack of concentration, and even depression may be a result of impaired production of mitochondrial ATP as these symptoms are often reflective of insufficient ATP availability.



Adenosine Triphosphate (ATP)

AMPK

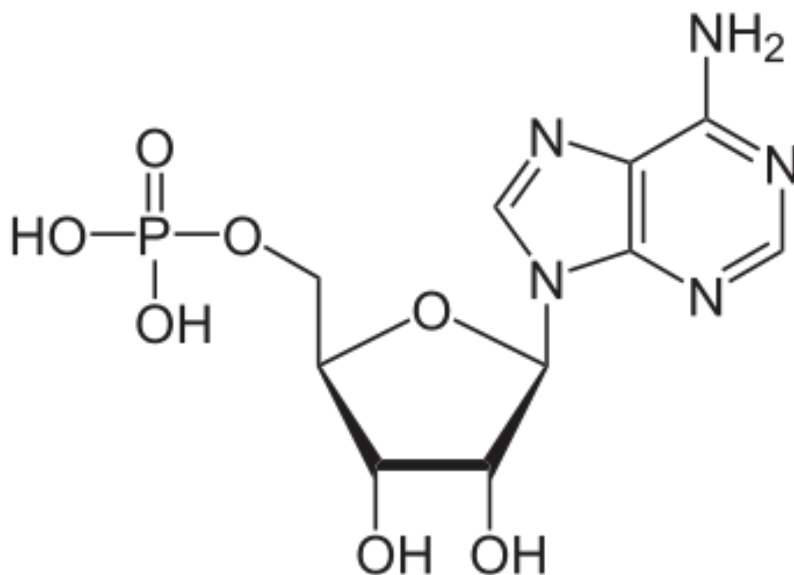
The ratio between ATP and AMP is used as a way for a cell to sense how much energy is available and control the metabolic pathways that produce and consume ATP.³ The body attempts to maintain a specific ratio of AMP:ATP; when this ratio is out of balance, the cells adjust their metabolism accordingly. As the ratio increases either by increased levels of AMP or decreased levels of ATP, the body is signaled to produce more ATP. The AMP:ATP ratio is primarily regulated by an enzyme known as AMP-activated protein kinase (AMPK). When activated, AMPK sets in motion a series of events which switch cells from active ATP consumption to ATP production.



The presence of AMP leads to an increase in AMPK activity by approximately 5-fold, however AMP also plays an important role in regulating the level of phosphorylation of AMPK. "An increased AMP to ATP ratio leads to [...] increased phosphorylation and decreased dephosphorylation of AMPK. The phosphorylation of AMPK results in activation by at least 100-fold."⁴ This means that a relatively small increase in AMP can result in a dramatic increase of AMPK activity.

Adenosine Monophosphate (AMP)

Adenosine monophosphate (AMP) is a naturally occurring cellular metabolite and is one of the four purine nucleotides responsible for protein synthesis. It is also a key component in certain enzyme reactions necessary for proper fat and carbohydrate metabolism. AMP appears to be beneficial for correcting low energy production due to mitochondrial dysfunction by increasing AMPK activity, a crucial regulator of cellular metabolism. AMPK activation has been shown to help reduce fat storage and triglyceride production while increasing fat burning and glucose uptake. When AMPK activity is impaired, glucose and fat begin to accumulate, leading to conditions such as increased belly fat, elevated blood sugar, insulin resistance, and high cholesterol.



Adenosine Monophosphate (AMP)

Published Uses



Several uses have been published for Adenosine Monophosphate. In his book, *Multiple Sclerosis and How I live with it*, Dr. Bjork describes how AMP helped with some of his symptoms. "Adenosine [Mono]Phosphate preparations have been used in the treatment of multiple sclerosis, for a number of years by several investigators, including Beryl C. Shearer, M.D. and myself. In my case many of my symptoms have been helped, many eliminated. Dr. Shearer has been free of symptoms for many years."⁵ He shared his success with others who suffered from MS, often receiving letters of praise. After two years of AMP therapy one such patient reports: "[M]any healthy people I know aren't in as good shape as I am."⁵

S. Harvey Sklar M.D. Has found additional benefits of Adenosine Monophosphate and has authored several papers showing it's efficacy in cases of herpes simplex and herpes zoster. "[Adenosine Monophosphate] treatment replaces the AMP lost to viruses and allows the cells to repair damage and prevent replication of the virus."⁶ Dr. Sklar even published a randomized, placebo-controlled double-blind trial using Adenosine Monophosphate for acute herpes zoster. "At the end of the initial four-week treatment period, 88% of AMP-treated patients were pain free, as opposed to only 43% in the placebo group."⁸

Myoden & My-B-Tabs

Legere Pharmaceuticals uses a pharmaceutical grade and therapeutically dosed form of adenosine monophosphate in two sublingual delivery systems: **Myoden Sublingual Spray** and **My-B-Tabs Sublingual Tablets**.



Myoden Spray Supplement Facts: Each 6 Sprays Contains:

Adenosine Monophosphate	25 mg
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My-B-Tabs Supplement Facts: Each Tablet Contains:

Adenosine Monophosphate	25 mg
Folic Acid	10 mcg
Vitamin B-12 (cyanocobalamin)	50 mcg

References

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*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, mitigate or prevent any disease.