

## What is Myasthenia Gravis?

Myasthenia gravis is a disease that causes weakness in the muscles under your control. It happens because of a problem in communication between your nerves and muscles. Myasthenia gravis is an autoimmune disease. Your body's own immune system makes antibodies that block or change some of the nerve signals to your muscles. This makes your muscles weaker.

Common symptoms are trouble with eye and eyelid movement, facial expression and swallowing. But it can also affect other muscles. The weakness gets worse with activity, and better with rest..

There are medicines to help improve nerve-to-muscle messages and make muscles stronger. With treatment, the muscle weakness often gets much better. Other drugs keep your body from making so many abnormal antibodies. There are also treatments which filter abnormal antibodies from the blood or add healthy antibodies from donated blood. Sometimes surgery to take out the thymus gland helps.

For some people, myasthenia gravis can go into remission and they do not need medicines. The remission can be temporary or permanent.

If you have myasthenia gravis, it is important to follow your treatment plan. If you do, you can expect your life to be normal or close to it.

### Causes

Myasthenia gravis is a type of autoimmune disorder. An autoimmune disorder occurs when the immune system mistakenly attacks healthy tissue. In people with myasthenia gravis, the body produces antibodies that block the muscle cells from receiving messages (neurotransmitters) from the nerve cell. Antibodies are proteins made by the body's immune system when it detects harmful substances. Antibodies may be produced when the immune system mistakenly considers healthy tissue a harmful substance such as in the case of myasthenia gravis.

The exact cause of myasthenia gravis is unknown. In some cases, it is linked to tumors of the thymus (an organ of the immune system).

Myasthenia gravis can affect people at any age. It is most common in young women and older men.

### Symptoms

Myasthenia gravis causes weakness of the voluntary muscles. Voluntary muscles are those that are under your control. Autonomic muscles, such as the heart and the digestive tract, are usually not affected. The muscle weakness of myasthenia gravis worsens with activity and improves with rest.

The muscle weakness can lead to a variety of symptoms, including:

- Breathing difficulty because of weakness of the chest wall muscles
- Chewing or swallowing difficulty, causing frequent gagging, choking, or drooling
- Difficulty climbing stairs, lifting objects, or rising from a seated position
- Difficulty talking
- Drooping head

- Facial paralysis or weakness of the facial muscles
- Fatigue
- Hoarseness or changing voice
- Double vision
- Difficulty maintaining steady gaze
- Eyelid drooping

### Exams and Tests

The health care provider performs a physical exam. This includes a detailed nervous system (neurological) examination. This may show:

- Muscle weakness, with eye muscles usually affected first
- Normal reflexes and feeling (sensation)

Tests that may be done may include:

- Acetylcholine receptor antibodies associated with this disease
- CT or MRI scan of the chest to look for a tumor
- Nerve conduction studies
- EMG
- Pulmonary function tests
- Edrophonium test to see if this medicine reverses the symptoms for a short time

### Treatment

There is no known cure for myasthenia gravis. Treatment may allow you to have periods without any symptoms (remission).

Lifestyle changes often help you continue your daily activities. The following may be recommended:

- Resting throughout the day
- Using an eye patch if double vision is bothersome
- Avoiding stress and heat exposure, which can make symptoms worse

Medicines that may be prescribed include:

- Neostigmine or pyridostigmine to improve the communication between the nerves and the muscles

- Prednisone and other medications (such as azathioprine, cyclosporine, or mycophenolate mofetil) if to suppress the immune system response, if you have severe symptoms and other medicines have not worked well.

Crisis situations are attacks of weakness of the breathing muscles. These attacks can occur without warning when either too much or too little medicine is taken. These attacks usually last no longer than a few weeks. You may need to be admitted to the hospital where you may need breathing assistance with a ventilator.

A procedure called plasmapheresis may also be used to help end the crisis. This procedure involves removing the clear part of the blood (plasma), which contains the antibodies. This is replaced with donated plasma that is free of antibodies or with other fluids. Plasmapheresis may also help reduce symptoms for 4 to 6 weeks and is often used before surgery.

Another procedure, called immunoglobulin infusion, may also be done. With this procedure, a large amount of helpful antibodies are given directly into the bloodstream.

Surgery to remove the thymus (thymectomy) may result in permanent remission or less need for medicines, especially when there is a tumor present.

If you have eye problems, your doctor may suggest lens prisms to improve vision. Surgery may also be recommended to treat your eye muscles.

Physical therapy can help maintain your muscle strength. This is especially important for the muscles that support breathing.

Some medicines can worsen symptoms and should be avoided. Before taking any medicine, check with your doctor whether it is okay for you to take.

### Support Groups

You can ease the stress of illness by joining a myasthenia gravis support group. Sharing with others who have common experiences and problems can help you not feel alone.

### Outlook (Prognosis)

There is no cure, but long-term remission is possible. You may have to restrict some daily activities. People who have only eye symptoms (ocular myasthenia gravis), may develop generalized myasthenia over time.

Pregnancy is possible for a woman with myasthenia gravis, but careful prenatal care is important. The baby may be temporarily weak and require medications for a few weeks after birth, but usually does not develop the disorder.

### Possible Complications

The condition may cause life-threatening breathing problems. This is called a myasthenic crisis.

Patients with myasthenia gravis have a higher risk of having other autoimmune disorders, such as thyrotoxicosis, rheumatoid arthritis, and systemic lupus erythematosus (lupus).

### When to Contact a Medical Professional

Call your health care provider if you develop symptoms of myasthenia gravis.

Go to the emergency room or call the local emergency number (such as 911) if you have breathing difficulty or swallowing problems.

### Alternative Names

Neuromusclar disorder - myasthenia gravis