

# Spotlight on Health

## Myasthenia Gravis

### What Is Myasthenia Gravis?

Myasthenia gravis (MG) is an autoimmune disease that affects the nerves. It causes weakness in voluntary muscles. These are the ones we can control, like those in our arms and legs. MG might also affect the muscles we use to breathe. It does not affect muscles that we can't control, like the heart muscles. There is no cure for MG. However, most people with MG have a normal lifespan.

Researchers think that about 60,000 (or 1 in 5,000) people in the United States have MG,<sup>1</sup> but the number might be much higher. This is because MG can be hard to diagnose, so many people with MG never find out they have it. People of both genders and all ethnic groups can have MG. It most often develops in young women and older men. But it can strike at any age.

### Causes of MG

MG is caused by a problem with the nerve cells that send signals to the muscle cells. The nerves normally control the muscles by sending a signal to the muscle cells, making the muscles contract. But in people with MG, antibodies block the signal. This prevents the muscle cell from contracting, so the muscles don't work like they should. They get tired too fast.<sup>2</sup>

### Symptoms of MG

In people with MG, the muscles become weak when they are used and then improve after rest. In most people with MG, this happens first in the eye muscles. The eyelids might droop, or the person might have double vision. When MG affects only the eye muscles, it's called ocular MG. But MG usually affects other muscles, too. That is, MG is usually "generalized." People with generalized MG may also have<sup>3</sup>:

- Trouble walking
- A change in facial expression
- Trouble chewing or swallowing
- Difficulty breathing
- Slurred speech
- Weakness in the arms, hands, fingers, legs, or neck

Most people with MG have an abnormal thymus. The thymus, a gland in the neck, is part of the immune system. About 10% of people with MG develop a tumor of the thymus called a thymoma. And more people with MG will get thymomas as they age.<sup>2</sup> Thymomas usually are not cancerous, but sometimes they can become cancerous.



### What Is An Autoimmune Disease?

It's an illness in which your immune system attacks your own body. Your immune system normally protects you. It does this by making antibodies. These attack harmful substances like viruses. But in an autoimmune disease, your immune system doesn't work as it should. It attacks your own body tissues.

There are many kinds of autoimmune diseases. One kind is MG. Other examples are rheumatoid arthritis and type 1 diabetes. In each case, a different kind of body cell or structure is attacked. Scientists don't know why some people get these kinds of diseases. But they can cause serious damage to the body.

## Factors That Can Make Symptoms Worse

These factors may trigger symptoms or make them worse:

- Being stressed, tired, or sick
- Having a high fever
- Being in bright sunlight
- Having an operation
- Getting an immunization
- Menstruating
- Taking certain medicines

## How Doctors Treat MG

The symptoms of MG can usually be controlled. With treatment, most people with MG can lead normal or nearly normal lives. Several kinds of medicines are used. These can,

- Strengthen the chemical signal that nerve cells send to muscle cells
- Reduce the number of antibodies that the body makes. This kind of medicine may cause major side effects, so it must be used carefully

An operation to remove the thymus gland can help. It's done when people have a thymoma. But it also helps about half of people with MG who don't have a thymoma.<sup>2</sup>

Several other procedures can also be used. When a person has severe symptoms, these treatments help:

- Using a machine to remove plasma. Plasma is the part of the blood that contains antibodies. The machine replaces the person's plasma with new plasma. This removes the harmful antibodies from the person's body.
- Giving the person helpful antibodies from donated blood. These antibodies help the immune system work better. They are injected into a vein.

## How the Laboratory Can Help

Quest Diagnostics offers blood tests to look for certain antibodies that are found in people with MG. There are different antibodies and different types of MG. Knowing which antibodies you have can help your health care provider confirm a diagnosis. It can also help to guide treatment options.

## Additional Information

For more information, visit the Myasthenia Gravis Foundation of America at [myasthenia.org](http://myasthenia.org) or these helpful websites:

- [medlineplus.gov/myastheniagravis.html](http://medlineplus.gov/myastheniagravis.html)
- [ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Myasthenia-Gravis-Fact-Sheet](http://ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Myasthenia-Gravis-Fact-Sheet)

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## How To Take Care of Yourself if You Have MG

- Budget your energy.
- Rest your eyes or lie down briefly a few times a day.
- Work with your doctor to keep your general health good.
- Eat healthy foods from all the major food groups.
- Adjust your eating routine. Try to eat when you have good muscle strength.
- Use safety precautions at home. Install grab bars or railings where they might help.
- Use electric appliances like toothbrushes and can openers to help you.
- Wear an eye patch if you have double vision.
- Consider joining a support group.

## References

1. Phillips LH. The epidemiology of myasthenia gravis. *Semin Neurol.* 2004;24:17-20.
2. Gilhus NE. Myasthenia Gravis. *N Engl J Med.* 2016;375:2570-2581.
3. Oger J, Frykman H. An update on laboratory diagnosis in myasthenia gravis. *Clin Chim Acta.* 2015;444:126-131.