

# Myasthenia Gravis: An Autoimmune Neuromuscular Disorder

## WHAT IS MYASTHENIA GRAVIS?

Myasthenia gravis (MG) is a chronic **autoimmune neuromuscular disorder** characterized by fluctuating weakness of the skeletal muscle groups.<sup>1</sup>



The term "myasthenia" comes from Greek and Latin words meaning "**muscle weakness**".<sup>2</sup> The term "gravis" comes from a Latin root meaning "**serious**" or "**heavy**."



MG affects approximately **700,000 people**<sup>3</sup> worldwide and is associated with a heavy disease burden.



### Common Symptoms Can Include:<sup>4</sup>

- Drooping eyelids
- Muscle weakness
- Difficulty breathing or swallowing
- Mental and physical fatigue



Symptoms differ from person to person, and may fluctuate or only affect certain muscles.<sup>5</sup> MG can affect people of all ages and races. Common disease onset ages are between **20 and 39 years for women** and **between 50 and 70 years for men**.

## CAUSES



The immune system normally defends the body against diseases, but sometimes it can turn against the body, leading to an **autoimmune disease**, like MG.<sup>6</sup>



In healthy individuals, nerves release a neurotransmitter called Acetylcholine, which binds to **acetylcholine receptors (AChR)** on muscles, causing the muscle to contract normally.<sup>6</sup>



In most cases, MG occurs when the immune system produces AutoAB/pathogenic AB that lead to functional and structural impairment of the neuromuscular junction. About **85% of people** with MG have antibodies against the AChR in their blood.<sup>6</sup>

## TREATMENTS



**There is no cure for MG.** However, various treatments are used today to relieve symptoms. Treatments vary based on disease severity, affected muscle groups, patient age, and comorbidities.<sup>7,8</sup>



**Medications are primarily non-specific** and include symptomatic treatments, immunosuppression, and immune modulation. In some circumstances, thymectomy, the surgical removal of the thymus gland, is recommended to help relieve symptoms.<sup>7</sup>

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## References

- 1 Myasthenia Gravis Foundation of America. What is MG. MG Quick Facts. Available at: <https://myasthenia.org/What-is-MG/MG-Quick-Facts>. Accessed June 29, 2021.
- 2 Conquer MG. About MG. What is MG. Available at: <https://www.myastheniagravis.org/about-mg/what-is-mg/>. Accessed July 15, 2021.
- 3 The Lancet Regional Health. Incidence, mortality and economic burden of myasthenia gravis in China: A nationwide population-based study. Available at: [https://www.thelancet.com/journals/lanwpc/article/PIIS2666-6065\(20\)30063-8/fulltext](https://www.thelancet.com/journals/lanwpc/article/PIIS2666-6065(20)30063-8/fulltext). Accessed June 29, 2021.
- 4 Gilhus, NE et al, Nat Rev Dis Primers, 2019; Centre for International Economics, The cost to patients and the community of Myasthenia Gravis, 2013; Constantine, J., Quizalize.
- 5 Conquer MG. About MG. Diagnosis. Available at: <https://www.myastheniagravis.org/about-mg/diagnosis/>. Accessed July 15, 2021.
- 6 Muscular Dystrophy Association. Myasthenia Gravis. Causes/Inheritance. Available at: <https://www.mda.org/disease/myasthenia-gravis/causes-inheritance>. Accessed July 28, 2021.
- 7 Mayo Clinic. Myasthenia gravis. Available at: <https://www.mayoclinic.org/diseases-conditions/myasthenia-gravis/diagnosis-treatment/drc-20352040>. Accessed July 1, 2021.
- 8 Conquer MG. About MG. Treatments. Available at: <https://www.myastheniagravis.org/about-mg/treatments/>. Accessed July 16, 2021.