

Generalized Myasthenia Gravis



What is gMG?

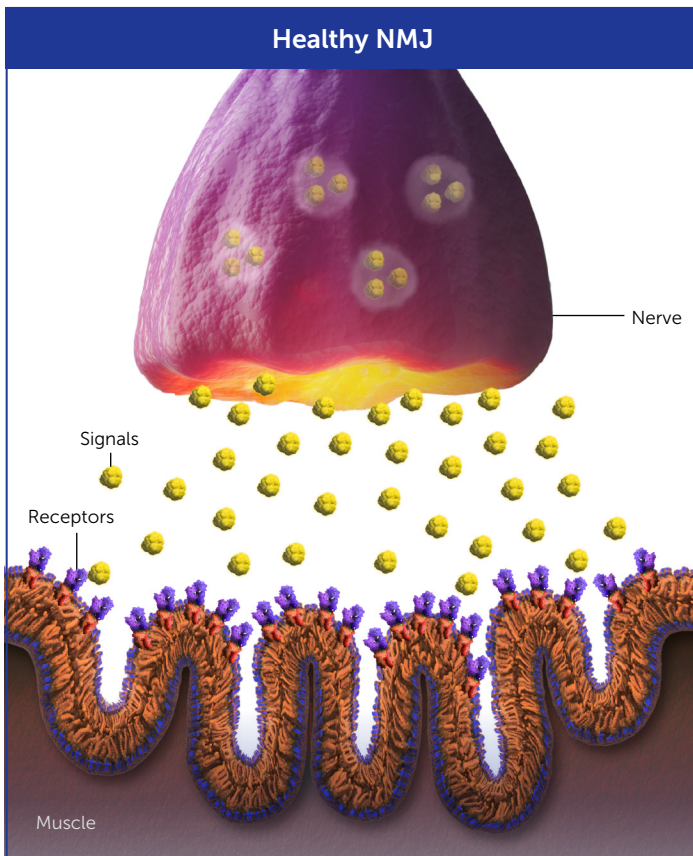
A rare, chronic, neuromuscular disease causing muscle weakness and fatigue that fluctuates, worsens with activity, and improves with rest.¹

gMG is an Autoimmune Disease¹⁻³

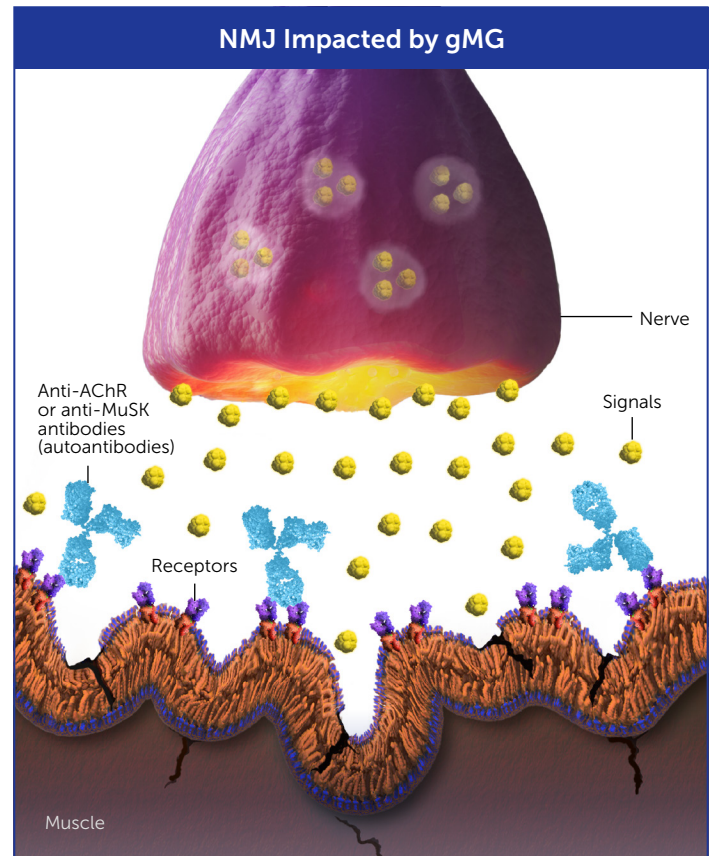
This means the immune system, the body's protection against infection and disease, mistakenly attacks itself. gMG results from a disruption in signaling between nerves and muscles.

gMG is a Disorder of the NMJ⁴

This disruption happens in the neuromuscular junction (NMJ), the place where the nerve cells and muscles communicate.



Normally, a signal, usually ACh, is **released from nerve cells and attaches to receptors on the muscle cells**, telling muscles to contract.^{4,5}



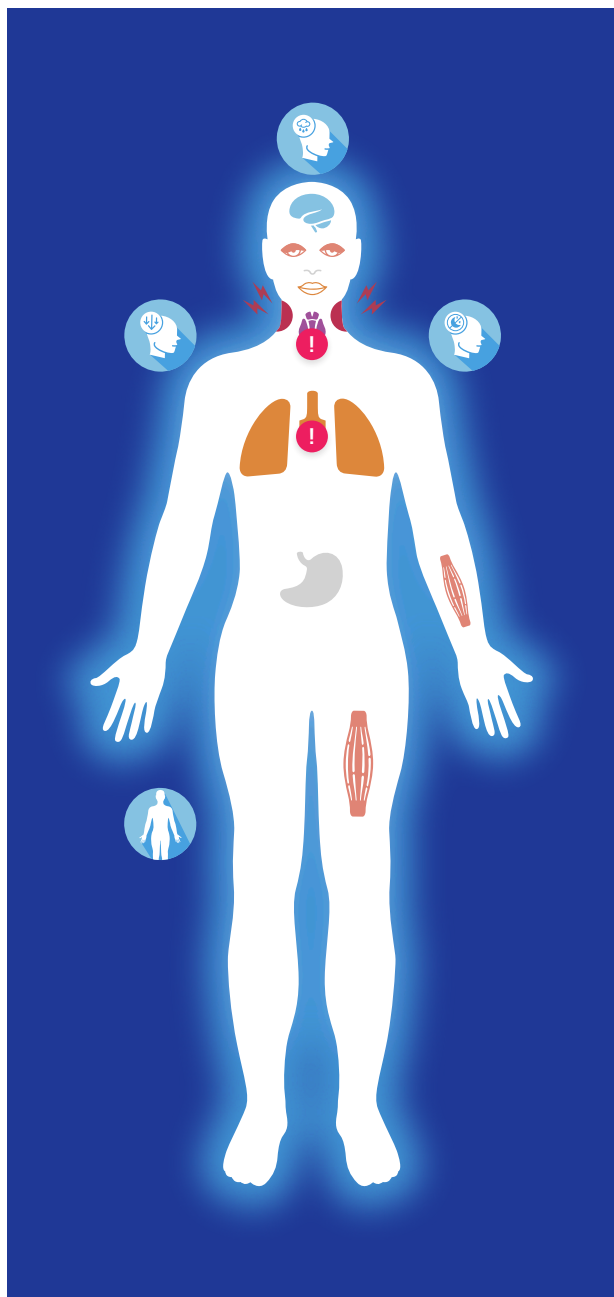
In gMG, the body makes autoantibodies (malfunctioning parts of the immune system) that **attack AChR, or less-commonly, muscle receptor proteins** such as MuSK. These autoantibodies disrupt normal nerve-muscle communication, causing muscle weakness.^{4,5}

ACh, acetylcholine; AChR, acetylcholine receptor; gMG, generalized myasthenia gravis; MuSK, muscle-specific tyrosine kinase; NMJ, neuromuscular junction.

References: 1. Behn A, Le Panse R. *J Neuromuscul Dis.* 2018;5(3):265-277. 2. Todar K. *Todar's Online Textbook of Bacteriology.* University of Wisconsin-Madison. 2002. Accessed Aug 7, 2025. 3. Ludwig RJ, et al. *Front Immunol.* 2017;8:603. 4. Gilhus NE, Tzartos S, Evoli A, Palace J, Burns TM, Verschuuren J. *Nat Rev Dis Primers.* 2019;5(1):30. 5. Li Y, Aurora Y, Levin K. *Cleve Clin J Med.* 2013;80(11):711-721.

The Symptoms of gMG Can Vary from Person to Person^{1,2}

Physical and QoL Symptoms You May Experience



Emotional Impacts¹

such as anxiety, fear, and an overarching sense of sadness



Difficulty falling asleep¹

or inability to sleep through the night



Lack of energy¹

tiring more quickly than usual when performing common tasks



Loss of independence¹

such as difficulty getting dressed, completing chores, running errands, driving, and using the bathroom independently



Increased forgetfulness or trouble focusing¹



Neck weakness¹

becomes easily tired, and/or it is painful to hold up the head



Difficulty chewing or speaking^{1,2}



Leg and arm weakness¹

including difficulty rising from a seated position



Ocular MG³⁻⁵

often presenting with droopy eyelids and/or double vision, which may progress to gMG in up to 85% of people within two years



Difficulty swallowing including choking, vomiting, or food entering your airway, may signal a myasthenic crisis. Seek emergency medical care immediately.^{1,2}



Difficulty breathing or shortness of breath including taking quick shallow breaths or struggling to breathe, may be indicative of myasthenic crisis. Seek immediate medical attention^{1,2}



Some Key Questions You May Want to Ask Your gMG Specialist

1. How might changing my lifestyle help me manage my symptoms (i.e. exercise, diet, periods of rest, limiting exposure to heat, etc)?
2. How might changing my medication help me manage my symptoms?
3. Is it likely my symptoms will ever get better on their own?
4. What signs should I watch out for that might indicate my condition is getting worse?

gMG, generalized myasthenia gravis; MG, myasthenia gravis; QoL, quality of life.

References: **1.** Jackson K, Parthan A, Lauher-Cherest M, Broderick L, Law N, Barnett C. *Neurol Ther.* 2023;12(1):107-128. **2.** Khadilkar SV, Chaudhari CR, Patil TR, Desai ND, Jagiasi KA, Bhutada AG. *Neurol India.* 2014;62(5):492-497. **3.** Gilhus NE, Tzartos S, Evoli A, Palace J, Burns TM, Verschuuren J. *Nat Rev Dis Primers.* 2019;5(1):30. **4.** Overview of MG. Myasthenia Gravis Foundation of America. Accessed May 2023. <https://myasthenia.org/Professionals/Clinical-Overview-of-MG> **5.** Grob D, Brunner N, Namba T, Pagala M. *Muscle Nerve.* 2008;37(2):141-149.

